

Loan Word Adaptation and Vowel Harmony in Turkish: A Government Phonology Account

Semra Baturay

This study aims at investigating the adaptation of the loan words in Turkish and their relation to vowel harmony. I specifically focus on the loan words with final and initial consonant clusters within the framework of Government Phonology proposed in Kaye, Lowenstamm & Vergnaud (1990). Following Charette (1991, 2004), I propose that the loan words with initial (*s(t)por* ‘sport’) and final (*fik(i)r* ‘idea’) clusters are not allowed in Turkish; thus, these words have a lexically empty position between the consonants of the clusters when adapted to Turkish. This implies that there is no consonant insertion or deletion for the adaptation of the loan words. The empty nucleus position is realized if it fails to be p-licensed (phonological licensing). I focus on why and how the empty position is realized.

My claim is that the word final empty nucleus position cannot properly govern the empty position of the previous nucleus given that p-licensing fails (Kaye, 1990). Hence, the vowel has to be realized via U and I harmony in the light of licensing constraints given in Charette & Göksel (1994). The realization of the empty nucleus position in the adapted words with initial clusters follows some patterns other than vowel harmony and licensing constraints. The present study suggests that there is no epenthesis phenomenon in loan words with consonant clusters, but the issue is related to the realization of the empty nucleus which depends on the p-licensing phenomenon.

1. Introduction

This study aims at investigating the adaptation of the loan words in Turkish and its relation to vowel harmony. I specifically focus on the loan words with final and initial consonant clusters within the framework of Government Phonology (GP) proposed in Kaye, Lowenstamm & Vergnaud (KLV) (1985, 1990), which is based on the non-arbitrariness principle. I will make the following points: (i) The loan words with initial (*s(t)por* ‘sport’) and final (*fik(i)r* ‘idea’) consonant clusters are adapted to Turkish with a lexically empty nucleus position breaking these adjacent consonants. (ii) There is no vowel insertion or deletion in the adaptation of the loan words in Turkish. (iii) Insertion and deletion are arbitrary accounts for vowel zero alternation. Instead, GP provides an account based on the idea that the empty nucleus position is realized if it

fails to be p-licensed. (iv) The realization of this empty nucleus between the final consonants is predictable from vowel harmony facts of Turkish, namely element spreading.

The study contributes to the field in that (i) the present vowel harmony account should be modified in order to explain the data from loan word adaptation, and (ii) element spreading of Turkish can occur from right to left as well as left to right.

The paper is organized as follows: In the second section, I introduce the data. Section three provides a brief discussion of GP and in section four, I will discuss the vowel harmony facts in Turkish. Section five discusses the adaptation of the loan words with CC clusters. The conclusion section summarizes the paper.

2. Data

The present study focuses on two sets of data: one with the empty nucleus position between the final consonants (1a-d); and the other with the empty nucleus position between the initial consonants (2a-f).

(1) The empty nucleus position between the final consonants

a. kut_b	→	kut <u>u</u> p	‘pole’
b. fik_r	→	fik <u>i</u> r	‘idea’
c. öm_r	→	öm <u>ü</u> r	‘life’
d. vak_t	→	vak <u>i</u> t	‘time’

(2) The empty nucleus position between the initial consonants

a. f_ragman	→	f <u>i</u> ragman	‘fragment’
b. b_rom	→	b <u>u</u> rom	‘bromine’
c. t_raş	→	t <u>ı</u> raş	‘shave’
d. k_ral	→	k <u>ı</u> ral	‘king’
e. g_likoz	→	g <u>l</u> ikoz	‘glucose’
f. g_rup	→	g <u>u</u> rup	‘group’

Following Charette (1991, 2004), I propose that the loan words with final consonant clusters involve an empty nucleus which has to be realized when p-licensing fails to apply. Second, I argue that the empty nucleus position in final consonant clusters undergoes vowel harmony in accordance with the licensing constraints proposed in Charette & Göksel (1994, 1996). Third, I claim that the vowel harmony facts presented by the empty nucleus position in the loan words which have initial consonant clusters cannot be explained only with the licensing constraints proposed before. Thus, further conditions have to be proposed in order to explain the vowel harmony in those forms.

3. Government Phonology

Since the analysis in this paper is based on GP, a short discussion on its basic premises is required. The ‘ground rules’ of GP as proposed by KLV (1985, 1990), Kaye (1990), Kaye (1995) are *privativeness*, *universality* and *non-arbitrariness* (KLV, 1990:194).

(3) a. Privativeness

Phonological oppositions that are privative at the level of lexical representation remain privative at all levels.

Consequences: No default rules to ‘fill in’ missing features. Only univalent spreading (harmony) processes. ‘You can’t spread something that isn’t there.’ Unmarked values never spread directly.

b. Universality

The set of available phonological processes behaves like a function mapping initial representations onto final representations.

Consequences: The same physical object will receive uniform interpretation across phonological systems. Markedness conventions are universal.

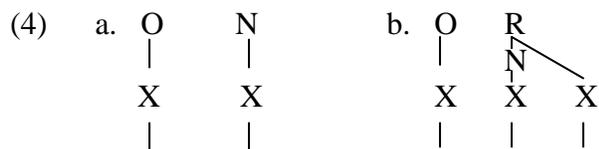
c. Non-arbitrariness

There is a direct relation between a phonological process and the context in which it occurs.

Example: Consider a process that converts a high tone into a rising tone following a low tone. An autosegmental treatment of this phenomenon satisfies the non-arbitrariness condition; a rule-based treatment does not.

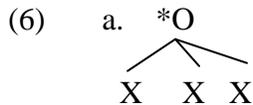
Adapted from KLV (1990:194) Examples (2a-c)

GP is a non-linear approach to phonology where words consist of sequences of onsets (O) and rimes (rhymes) (R), where the rime in turn contains the nucleus (N). O refers to the consonants and N to vowels. These constituents which can also be branching dominate skeletal positions which can be occupied by phonological expressions, yielding individual sounds such as /k, m, a/, etc. (KLV, 1990:199). Consider (4a-b) below which represent the constituent structure in GP. The three constituents (O, N, R) in (4a-b) are subject to three universal principles given in (5a-c) (Kaye, 2000:6).



- (5) a. Every nucleus can and must license a preceding onset.
 b. Every onset must be licensed by a following nucleus.
 c. Every constituent licenser must dominate a skeletal point.

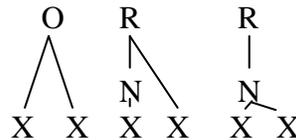
Another crucial aspect of GP is the notion of *government*. In GP, a syllabic constituent is a governing domain where the government relation is characterized as (i) strictly local, and (ii) strictly directional: head-initial (KLV, 1990:198). Based on these conditions, KLV (1990) argue that all syllabic constituents are maximally binary (6a-c).



b. Non-branching Syllabic
Constituent

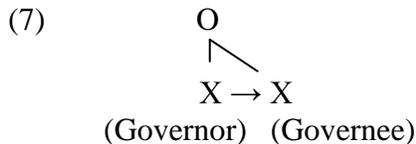


c. Branching Syllabic Constituent



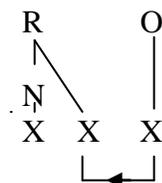
KLV (1990:199) Examples (11a-b) respectively

(6a-c) exclude the ternary branching of the constituents in phonology and is crucial in terms of the government relations. KLV (1990:203) state that those two positions which are dominated by a single constituent are in a government relationship, *constituent government*. A government relationship is a binary, asymmetrical relationship consisting of a governor and a governee. Consider (7).

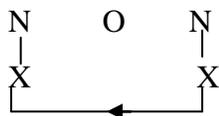


Apart from constituent government in (7), a governing relation exists between contiguous skeletal positions, *interconstituent government* for which KLV (1990:210) put forward two principles (8a-b) and three contexts (9a-c).

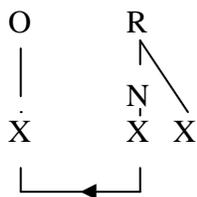
- (8) a. Only the head of a constituent may govern
 b. Only the nucleus (or a projection thereof) may govern a constituent head
 KLV (1990:210) Examples (36a-b)
- (9) Interconstituent Governing Contexts
 a. Government between an onset and a preceding rhymal position



b. Government between contiguous nuclei



c. Government between a rhyme and an onset



KLIV (1990:210-211) Examples 37(a-c) respectively

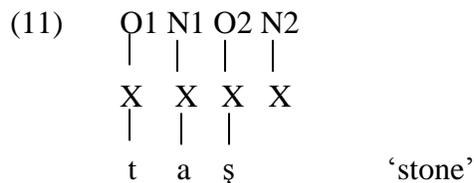
(9a) is labeled as *coda licensing* by Kaye (1990:311), a principle according to which post-nuclear rhymal positions must be licensed by a following onset. It is important to note that government relations apply at the same level in GP. This is principled as the Projection Principle given in (10) below.

(10) *The Projection Principle:*

Governing relations are defined at the level of lexical representation and remain constant throughout a phonological derivation.

Kaye (1990:221) Example (60)

After discussing the constituent structure and government relations in GP, let us discuss how GP approaches empty categories in phonology. In GP, an empty category is considered as a skeletal position with no phonological material. This is exemplified in (11) below.



In (11) ‘ş’ occurs under O2. It does not belong to the post-nuclear rhymal position since post-nuclear rhymal positions must be licensed by a following onset (*coda licensing* by Kaye (1990:311)). Since ‘ş’ is not followed by an onset but by an empty nucleus, it occurs under O2.

N_2 has no phonological material; thus it is an empty category. An empty category is interpreted according to the Empty Category Principle (ECP) (Kaye, 2000:10).

(12) *The Phonological ECP:*

A p-(rosodic) licensed (empty) category receives no phonetic interpretation.

P-licensing occurs when

- a. Domain-final (empty) categories are p-licensed (parameterized).
- b. Properly governed (empty) nuclei are p-licensed.
- c. Magic licensing: $s+C$ sequences p-license a preceding empty nucleus.

Kaye (2000:10)

Another issue within GP is the internal make up of phonological expressions, i.e. consonants and vowels. In GP, phonological expressions are composed of elements such as A, I, U, H, L, ? (Kaye, 2000:1). These elements represent the properties given in (13).

(13) A: represents openness in vowels, coronality in consonants.

I: represents height in vowels, palatality in consonants.

U: represents roundness in vowels, labiality in consonants.

L: represents low tone, slack vocal cords, voice consonants, nasality.

H: represents high tone, stiff vocal cords, voicelessness in consonants, friction.

?: the glottal stop.

Balci (2006:23) Example (21)

Kaye (2000) also refers to ($_$) (null) which can also be interpreted as a phonological expression. There is no distinctive feature in GP and elements are monovalent, meaning single-valued (KLV, 1990:202). In a phonological expression, there may be more than one element. For example, the phonological expression \ddot{u} has two elements, I and U. One of these elements can be an operator or a head (Charette & Göksel, 1994, 1996). The head of an expression licenses its operators and plays a role in the relationships between phonological expressions (such as vowel harmony). For example, in some Scandinavian languages, there are two types of \ddot{u} : while \ddot{u} headed by I can be represented as (U.I), \ddot{u} headed by U can be represented as (I.U) (Charette & Göksel, 1996:3). According to Kaye (2001:253), licensing constraints are used in order to regulate the combination of the elements into phonological expressions. In other words, licensing constraints are language specific laws on phonological expressions which reduce the elemental combinations not used in a language by determining the role of elements in a phonological expression.

Kaye (2000:2) states that expressions can be headed or headless. The ones headed by the identity operator ($_$) are called headless. The others are headed. The head of an expression licenses its operator(s).

4. The Turkish vocalic inventory and vowel harmony

After providing a brief discussion on the basic tenets of GP, I will now continue with Turkish vowel harmony and its analysis within GP.

4.1. The Turkish vocalic inventory and licensing constraints

Charette & Göksel (1994) point out that Turkish has eight vowels (a, e, ɪ, i, o, ö, u, ü) and there is no lax–tense distinction. Within GP, the tenseness or laxness of a vowel is related to the headedness (Kaye 2001). Tense vowels are headed expressions (14a), lax ones, on the other hand, are headless (14b):

- (14) a. (A.I) vs. (A.I) → tense
 b. (A.I) → lax

In Turkish, since there is no tense-lax distinction, we need a constraint to exclude the headless expressions from the vocalic inventory. This is done with the constraint below.

- (15) *Operators must be licensed.*

Due to this constraint, following Charette & Göksel (1994), we have reached the point that all expressions in Turkish are headed except *i* (∅), which eliminates headless expressions from the language. However, this is not enough to exclude non-existent phonological expressions since the possible combinations of the elements give more phonological expression than we actually need. Thus, we need some more constraints. Let us see what other constraints Turkish has been assumed to have in the rest of this section.

Charette & Göksel (1994) present two sets of suffixes in Turkish with respect to the vowels they involve. According to this classification, Type I suffixes consist of a nucleus which has a lexical A element. Type II suffixes, on the other hand, consist of an empty nucleus.

- (16)

Stem Vowel	Type I Suffix	Type II Suffix
a or ɪ	a at-lar horse+Plu ‘horses’ kız-lar girl+Plu ‘girls’	i at-in horse+Poss ‘your horse’ kız-in girl+Poss ‘your girl’
e or i	e ev-ler house+Plu ‘houses’ diz-ler knee+Plu ‘knees’	i ev-in house+Poss ‘your house’ diz-in knee+Poss ‘your knee’
o or u	a not-lar note+Plu ‘notes’ muz-lar banana+Plu ‘bananas’	u not-un note+Poss ‘your note’ muz-un banana+Poss ‘your banana’
ö or ü	e göz-ler eye+Plu ‘eyes’ gün-ler day+Plu ‘days’	ü göz-ün eye+Poss ‘your eye’ gün-ün day+Poss ‘your day’

Table I: Suffix types and vowels

Adapted from Charette & Göksel (1994:39) Example (8)

When we have a look at Table I in (16), we can see that the A element which is present in the stem vowel is not observed in the vowel of Type II suffixes. This simply means that the element A does not spread into the following nuclei. This is explained by the lack of the A-Harmony in Turkish. This is the case for the vowel harmony facts. As for the vocalic inventory, the A element cannot license its operators. Given that the harmony and the vocalic inventory are related to the licensing relationships, we can provide the following licensing constraint in (17) to explain the two facts we observed above.

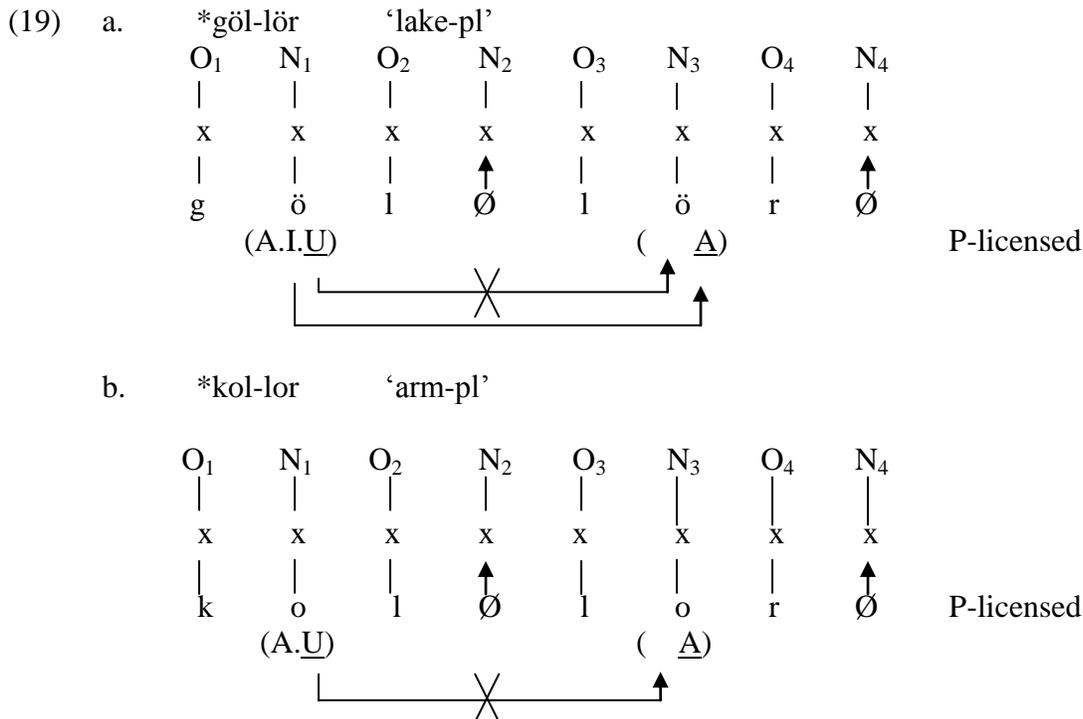
(17) *A is not a licenser.*

By spreading into the other nucleus positions, the spreader must license itself, too. Since the A element does not have such an authority, it cannot spread into the target position, hence we get the absence of A-Harmony.

The I and U elements, on the other hand, always spread when there is a Type II suffix as seen in (16). This is supported by the fact that I and U harmonies are present in Turkish. However, this is not true for Type I suffixes, the U element does not spread into the nucleus of the Type I suffix in which the A element lexically occurs, i.e. there is no U harmony for Type I suffixes. When we look at the Type I suffixes in (16) we observe that there is an A element in the target position. Thus, it seems that when there is an A element in the target position, U cannot spread into that position. This fact can be explained with another licensing constraint of Turkish given in (18):

(18) *U must be head.*

This constraint blocks the U element from spreading into the second nucleus where the A element is the head and U must spread into the operator position. This is supported by the fact that the following examples are ungrammatical:



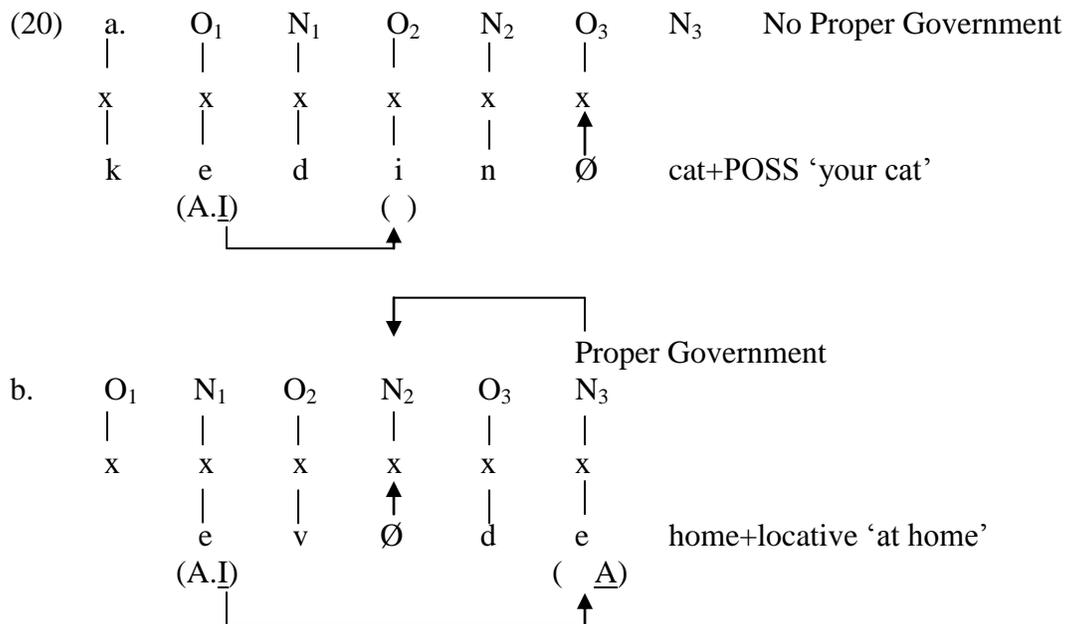
In these examples, U spreads from the head position of N₁ into the operator position of N₃, which is not allowed because of the constraint in (18). Note that N₂ and the final empty nucleus N₄ are phonologically silent due to proper government by N₃ and p-licensing, respectively, which I will mention in the following section.

Let us summarize this section. The licensing constraints for the vocalic inventory and the vowel harmony facts of Turkish have been developed by Charette & Göksel (1994, 1996). We will adopt these constraints for the analysis in this paper. As stated in Charette & Göksel (1994), phonological expressions are all headed in Turkish. This is expressed via a constraint saying *Operators must be licensed*. With the help of this constraint, we exclude headless expressions from our vocalic inventory. Additionally, an element can occupy an operator position if the element in the head position has the power of licensing its operator. Following the vowel harmony, we know that A cannot spread. That A cannot spread means that it cannot license itself while going to the target position, which necessitates the constraint saying *A is not licenser*. So, this constraint excludes any complex combinations in which A is the head. To get rid of excessive number of possibilities, we have one more constraint which says *U must be head*, which excludes the complex expressions in which U is not the head.

In this part, I have discussed the harmony and the licensing constraints in general. In the following part, I will refer to I and U harmonies for Turkish.

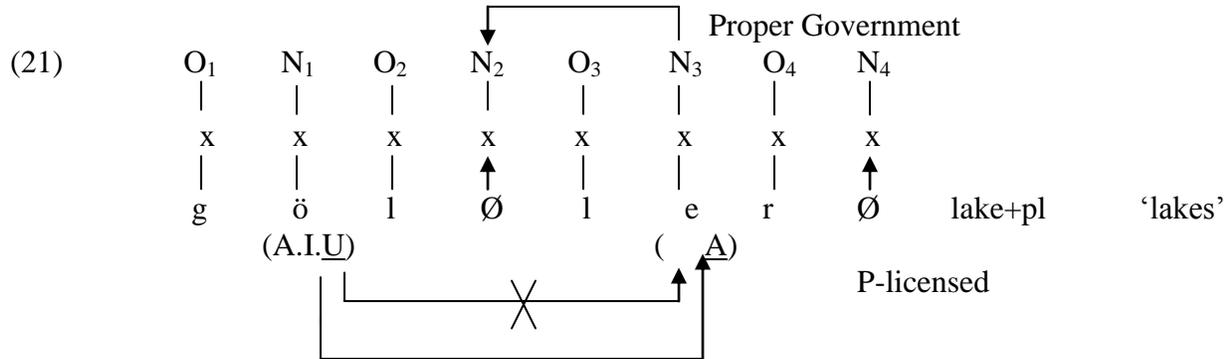
4.2. Turkish I and U-Harmony

As stated in Charette & Göksel (1994), any vowel can occur in the first nucleus position in the vowel harmony process. However, there are restrictions on the recessive nuclei. When there is an I element in the first nucleus, it always spreads into the recessive nuclei no matter what type of suffix is present (Type I or Type II):

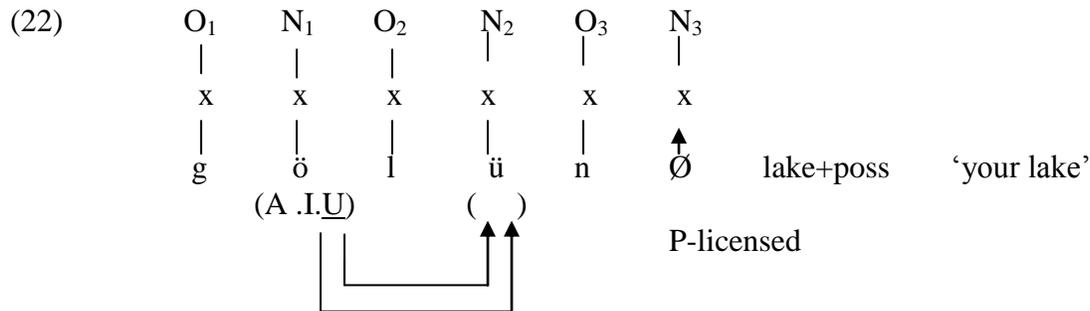


In (20a), we have a Type II suffix, namely the second person possessive marker. The I element spreads into that head position and the vowel is realized as *i*. In (20b), on the other hand, there is a Type I suffix, and the I element still spreads there as an operator. The I element licenses the presence of itself in the following nuclei which it governs.

While the I element spreads freely into any positions in Turkish, U gets stopped by the constraint we provided above: *U must be head*. If there is a Type I suffix in the following nucleus position, U does not spread. The reason for this is that U cannot spread into the operator position.



As seen in (21), the plural suffix is a Type I suffix and the A element is lexically present in N₃. Thus, A is the head in N₃. This implies that the spreader must spread into the operator position. But the constraint *U must be head* prevents U from spreading as an operator. That is why, **göl-lör* is impossible. For a type II suffix such as possessive, U spreads freely since the nucleus position of the suffix is lexically empty.



Up to now, we have discussed the vowel harmony process in a general sense. In the rest of the paper, we will discuss the process for adaptation of foreign words with clusters. We will discuss the constraints on the empty nucleus position between the consonant clusters when this empty nucleus position undergoes vowel harmony.

5. Adaptation of Foreign Words with Clusters

Words containing the empty nucleus position are repeated below in (23a-b).

- (23) a. fik_r-i ‘his/her idea’ → fikir_ ‘idea’
 b. zik_r-i ‘his/her invocation’ → zikir_ ‘invocation’

interpreted if the following nucleus N₃ is p-licensed. Since N₃ is itself licensed, it cannot govern the lexical empty nucleus position N₂. Not being p-licensed, the N₂ has to be realized.

Turkish has not only borrowed words with final clusters but also with initial clusters. The reason why the initial empty nucleus position must be realized is that in Turkish the first nucleus must always be realized as shown in (26a-b).

- (26) a. s_por → sıpor ‘sport’
 b. f_lor → fulor ‘fluorine’

In the following sections, we will examine the adaptation of the foreign words with word final clusters.

5.1. Adaptation of Foreign Words with Word Final Clusters

As we have stated above, Turkish does not allow word final consonant clusters.¹ Turkish adapts the foreign words with final clusters with an empty nucleus position. We propose that this can be explained with the p-licensing phenomenon within GP. Since the word final empty nucleus position is p-licensed, it cannot properly govern the empty position of the previous nucleus. Hence, the vowel has to be realized. Also, the empty nucleus position undergoes U and I harmonies as shown in (27a-c):

- (27) a. fik_r → fikir ‘idea’
 b. hük_m → hüküm ‘rule’
 c. kıs_m → kısım ‘part’

The words in (27a-c) are foreign words adapted to Turkish. They have an empty nucleus. When we look at the data above, two facts related to the vowel harmony are observed: (i) the empty nucleus is realized as a high vowel, and (ii) the high vowel alternates between (ı, i, u and ü). The first fact can be explained with the licensing constraint which says *A is not a licenser*. Since A is not a licenser, it cannot license itself before spreading and thus cannot spread into the empty nucleus position. The second fact can be explained with the constraint *U must be head*. Accordingly, U can spread as the head and the I element can spread into the empty nucleus position as an operator or as the head by licensing itself. Thus, we see that the same constraints for the vowel harmony are at work for the empty nucleus position in the adaptation of the foreign words with word final clusters. Let us now have a look at the harmony in the words having an empty nucleus position:

¹ Note that Turkish allows a number of consonant clusters such as [-ft, -lk,-lt, -nt, rk, -rp, -rs, -rt, -sk, -st, etc]. See Kornfilt (1996), Göksel & Kerslake (2005) for some discussion.

- (30)
- | | | | | |
|----|-------|---|---------------|-------------|
| a. | kab_r | → | kab <u>ir</u> | ‘grave’ |
| b. | vak_t | → | vak <u>it</u> | ‘time’ |
| c. | zul_m | → | zul <u>üm</u> | ‘cruelty’ |
| d. | ak_t | → | ak <u>it</u> | ‘agreement’ |
| e. | ac_z | → | ac <u>iz</u> | ‘helpless’ |

In (30a-e), it is observed that the empty nucleus position is not harmonious with the lexical vowel in the previous nucleus. Note that this is not an expected case with respect to the discussion so far. For the disharmonic cases above, I propose that they are not disharmonic, but the source of the harmony is not the lexical vowel, but the lexical consonant. That is to say, the consonantal expression in the second onset has an I element, and this I element spreads into the empty nucleus position. Thus, there is an element spreading where the same elements spread in accordance with the same licensing constraints provided above. This is shown in (31) below.

- (31)
- | | | | | | | | |
|--|----------------|----------------|----------------|----------------|----------------|----------------|------------|
| | O ₁ | N ₁ | O ₂ | N ₂ | O ₃ | N ₃ | |
| | | | | | | | |
| | x | x | x | x | x | x | |
| | | | | | | ↑ | |
| | z | u | l | ü | m | | ‘cruelty’ |
| | | (U) | (I) | () | | | P-licensed |
| | | | | ↑ | ↑ | | |

Note that in such words, the U element spreads from the previous vowel under any circumstance, but this is not true for the I element because it does not come from the vowel but comes from the consonant having an I element. Consider (32).

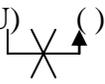
- (32)
- | | | | | | | | |
|--|----------------|----------------|----------------|----------------|----------------|----------------|-------------------------------|
| | O ₁ | N ₁ | O ₂ | N ₂ | O ₃ | N ₃ | |
| | | | | | | | |
| | x | x | x | x | x | x | |
| | | | | | | ↑ | |
| | v | a | k | i | t | | ‘time’ |
| | | (A) | | () | (I) | | P-licensed |
| | | | | ↑ | | | I Element spreads |
| | | | | | | | The A Element does not spread |

As seen in (32), the A element does not spread at all but the I element in the consonant spreads into the empty nucleus position no matter on which side of the empty nucleus position the consonant occurs. However, not all *t* sounds in word final position cause spreading given that some of them do not include an I element. The words including a final *t* with an I element are usually borrowed words. Let us have a look at *yakit* ‘fuel’:

(33)	O ₁	N ₁	O ₂	N ₂	O ₃	N ₃	
							‘fuel’
	x	x	x	x	x	x	
	y	a	k		t	↑	P-licensed
		(A)		()			
				No spreading			

In *yakıt* ‘fuel’, the A element does not spread into the empty nucleus position since it is not a licenser. There is no I spreading either since there is no I element in word final *t*. Hence, the empty nucleus position is realized as *i*.

While the element I in the consonants spreads into the empty nucleus position in adaptation of foreign words with word final clusters, U element cannot spread from the consonant. This is given in (34).

(34)	O ₁	N ₁	O ₂	N ₂	O ₃	N ₃	
							‘record’
	x	x	x	x	x	x	
	z	a	b	l	t		
		(A)	(U)	()		↑	P-licensed
							

Note that in (34) the empty nucleus position is realized as *i* but not as *u*. Since there is no U element in the root vowel, a possible source of U spreading, we check the elemental structure of the consonant before the empty nucleus position in order to see if U can spread from a consonant in adaptation of foreign words with final clusters. We realize that U does not spread from the consonant in (34). Since there is no I element in the root vowel or the consonant, the empty nucleus position is realized as *i*. Note also that the word in (34) has a final *t* sound, a possible source for the I spreading. We propose at this point that there are two kinds of final *t* coming from the source language. The first one involves an I element and this I element spreads into the empty nucleus position. The second one, on the other hand, cannot spread into the empty nucleus position. The final *t* in (34) is of the second type, hence the empty nucleus position in (34) is realized as *i* but not as *i*.

As seen above, in adaptation of harmonic foreign words with word final clusters, both U and I elements can spread from the root vowel into the empty nucleus position when the empty nucleus position undergoes harmony. If there is no I element in the vowel but there is one in the consonant, the I element spreads from the consonant no matter on which side of the empty nucleus position it occurs. But this is not the case for the U element because it can spread only from the root vowel, that is why it is impossible to come across a word like *C (A) I C^u UC³ as shown in (35):

³ C stands for a consonant.

(35) a. *kebur

b.	O ₁	N ₁	O ₂	N ₂	O ₃	N ₃
	x	x	x	x	x	x
						↑
	k	e	b	u	r	
		(I.A)	(U)	(U)		P-licensed

We have discussed the harmony of the empty nucleus position in the foreign words with word final clusters.⁴ Now let us have a look at the foreign words which have word initial clusters with respect to the harmony they undergo.

5.2. Adaptation of foreign words with word initial clusters

In Turkish, we do not only adapt the foreign words with final clusters but also the ones with initial clusters such as: *fragman* ‘fragment’, *brom* ‘bromine’, *traş* ‘shaving’, *kral* ‘king’, *glikoz* ‘glucose’, etc. In this section, we will question whether we use the same constraints when the empty nucleus position undergoes vowel harmony. We will propose that while adapting the words with initial clusters, we use the same strategy which we use in adaptation of foreign words with word final clusters, i.e. lexically empty nucleus position between initial consonant clusters. Let us have a look at the word *grup* ‘group’ in (36):

(36)

O ₁	N ₁	O ₂	N ₂	O ₃	N ₃
x	x	x	x	x	x
					↑
g	u	r	u	p	
	(U)		(U)		P-licensed

As seen in (36), the U element in the root vowel spreads into the empty nucleus position which is on the left side. This shows that vowel harmony works in the same way no matter on which side of the lexical vowel the empty nucleus position is. Let us see if the same is true in another word such as *stüdyo* ‘studio’.

⁴ For the words in which U seems to spread from the consonant to the vowel such as *tavuk* ‘chicken’, we can say that these words do not have a non-final empty nucleus position in any case: *tav_ku. Thus, we only focus on the words with such alternations.

(37)	O ₁	N ₁	O ₂	N ₂	O ₃	N ₃	O ₄	N ₄
	x	x	x	x	x	x	x	x
	s	ü	t	ü	d		y	o
		(I U)		(U I)				(AU)
		↑	↑					

In (37), the empty position is realized as *ü* which contains both I and U elements. This implies that the I and U elements spread together into the empty nucleus position. This seems to be in line with our hypothesis that the realization of the empty nucleus in adaptation of foreign words with initial and final clusters is the same. The I element spreads into the empty nucleus position as an operator and the U element spreads as the head by licensing themselves in the empty nucleus position.

However, our hypothesis falls short when we consider the forms in (38a) where the U element is present in the lexical vowel, but the empty position is still realized as *i*, but not *u*. Consider the forms in (38a-b).

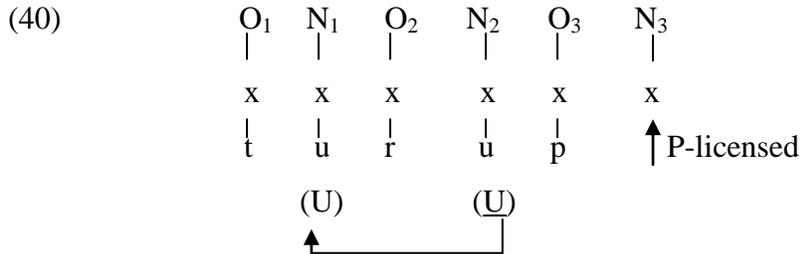
(38)	a.	_norkel	→	ɪnorkel	‘snorkel’
		s_mokin	→	sɪmokin	‘tuxedo’
		k_roki	→	kɪroki	‘sketch’
		t_rok	→	tɪrok	‘trok’
	b.	p_rotein	→	purotein	‘protein’
		f_lorin	→	fulorin	‘florin’
		b_rokoli	→	burokoli	‘broccoli’

In (38a) forms, the empty nucleus position does not undergo harmony and is realized as *i*, but the forms in (38b) undergo the U harmony and are realized as *u*. The unexpected asymmetry between the forms in (38a) and (38b) brings us a contradictory case with respect to the U harmony which says that the U element always spreads into the empty nucleus position. Although there is an empty nucleus position on its left, it does not spread as seen in (38a) forms. This implies that the U harmony is not unrestricted with respect to the directionality.

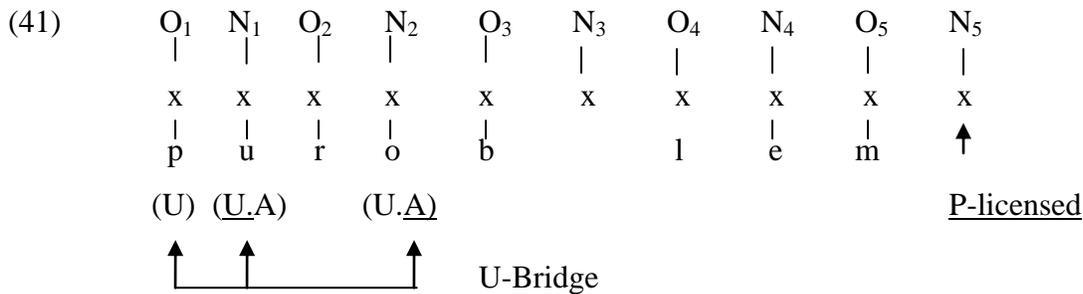
The examples in (38a-b) indicate that spreading of the U element depends on some conditions and whenever these conditions are satisfied, the U element spreads. Note that these conditions are at work only when U spreading takes place backward. Let us now try to see what these conditions are.

(39)	O ₁	N ₁	O ₂	N ₂	O ₃	N ₃
	x	x	x	x	x	x
						↑
	t	ɪ	r	o	k	
			(A.U)		P-licensed	
			_____		U does not spread.	

As seen in (39), the U element does not spread from the root vowel to the empty nucleus position contrary to what we expect. However, in (40), we see that the U element spreads into the empty nucleus position.



We propose that the different behavior of the U element in the forms above results from the presence of the A element in the root nucleus. In *trup* ‘troupe’, we do not have an A element in the root vowel, but the A element is present in *trok* ‘trok’. This suggests that when there is an A element in the root vowel, the U element in the same root vowel cannot spread into the empty nucleus position which is on the left side. We explain this fact with a condition which says that *the root vowel which contains the U element must be a simplex expression*. However, this condition cannot explain the forms where the U spreading takes place in the presence of an A element in the same root vowel. Consider the example in (41).



In (41), the empty nucleus position is realized as *u* contrary to what we expect from the condition we provided before. That is, although the U element in the root vowel occurs together with an A element, the spreading of U takes place. We propose that this is due to the presence of an U element in the consonant which fills the first onset position in (41). In the first onset position, we have the consonant *p* which has an U element. The U element in the first root vowel in N₂ seems to establish a U-bridge with which the U element spreads although the A element is present in the root vowel. Thus, we have to add a new condition for the U spreading in the foreign words which have an initial consonant cluster. The condition can be stated as *The U element spreads in the presence of an A element only if the first member of the cluster also contains an U element*. This condition can explain the facts above. Note that this is also true for other words having an initial consonant other than *p* but the one with U element such as *b_rom* ‘bromine’ and *f_lorin* ‘florin’.

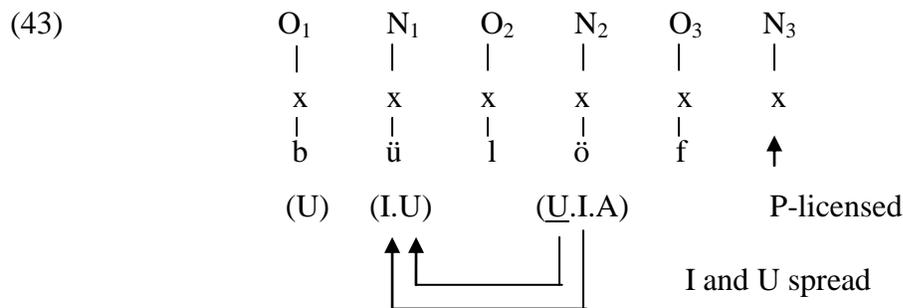
So far, we have seen that when there are A and U elements in the root vowel, spreading of the U element in the empty nucleus position depends on the existence of the U element in the initial member of the cluster, the first onset position occupied by a consonant. Thus, U-bridge is

inevitable for the element U to spread into the empty nucleus position in the adapted foreign words with initial clusters when the U element is in the same expression with the A element.

What about I spreading? Does spreading of I depend on any condition? In the rest of this section, we will discuss whether I spreading depends on similar conditions. Consider the following forms:

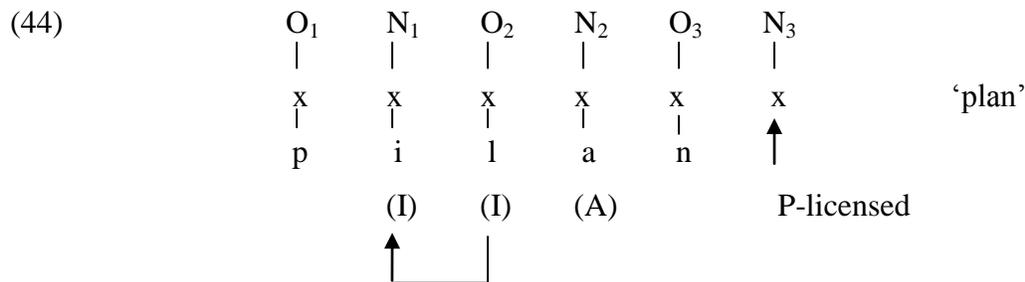
- (42)
- | | | | | |
|----|---------|---|------------------|----------|
| a. | p_lüton | → | p <u>ü</u> lütön | ‘pluto’ |
| b. | b_löf | → | b <u>ü</u> löf | ‘bluff’ |
| c. | t_riko | → | t <u>ı</u> riko | ‘tricot’ |
| d. | t_ren | → | t <u>ı</u> ren | ‘train’ |

The forms in (42a-d) indicate that the I element spreads in every context. This is represented in (43) below.



In (43), we realize that the U and I elements can spread together into the empty nucleus position by licensing themselves. However, the A element does not spread anywhere. That is why, the form is not **bölöf* ‘bluff’. What we see in (43) is that the I element can spread from everywhere. Different from the U element, it does not care whether the A element is present in the root vowel or not.

To support our claim, we discuss an example where the I element seems to spread from the consonant into the empty nucleus position on a par with the one in the root vowel. Let us examine the following form in (44):

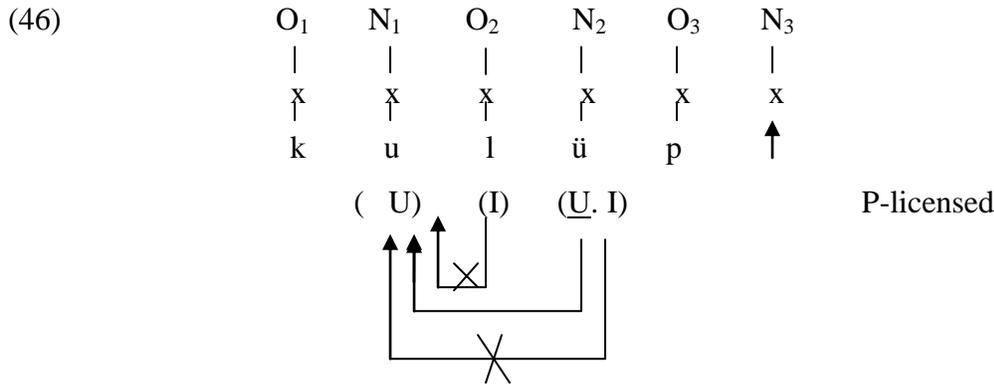


(44) shows that the I element spreads from the consonant to the empty nucleus position. Thus, we have seen that the I element spreads from both the root vowel and the root consonant.

Before concluding the section, we will discuss a set of examples where the I element does not spread into the empty nucleus position. Consider the forms in (45a-b).

- (45) a. k_lüp → kulüp ‘club’ b. s_tüdyo → sütüdyo ‘studio’
 k_rem → kirem ‘cream’ t_ren → tiren ‘train’
 g_ri → gri ‘grey’ b_lendir → bilendir ‘blender’

In the (45b) forms, the I element spreads from the vowel to the empty nucleus position, but in the (45a) forms it does not spread contrary to what we expect. So, the question is what prevents the I element from spreading in those forms. I propose that this results from the fact that the forms in which the I spreading is prevented contain *k* or *g* sounds. Let us see the representation below.



The representation in (46) shows that the U spreading takes place. As in the previous examples, it spreads from the root vowel into the empty nucleus position. However, the I spreading seems to be restricted in this case. Although the I element is present in both the root vowel and the consonant ‘l’, it spreads from neither of them into the empty nucleus position. Note that this happens only in the examples with an initial *k* or *g*. What we can claim at this point is that when the initial cluster is broken, the first C of the cluster is never changed. If I spreads from the consonant or from the vowel, it will also spread into the initial consonant which is *k* or *g*. This is supported by the fact that *k* and *g* sounds in Turkish are palatalized when there is a preceding or following vowel which includes an I element. This means that the I element spreads into these consonants as well. This brings us a new condition which is about the I spreading. The constraint which says *when the initial cluster is broken, the first C of the cluster is never changed* can prevent the I element spreading into the empty nucleus position in the words above.

Let us summarize this section in (47a-c):

- (47) a. When there is no A element, the U element spreads from the root vowel into the empty position no matter what the initial consonant is as in the forms *furuko*, *bulucin*, *туруakar*, *kulüz*, *gülüten*.
- b. When there is an A element, the U element spreads from the root vowel into the empty nucleus position only if the initial C member of the cluster has an U element as well, as in the forms *pulonjon*, *bulok*, *fulor*, *purotein*, *buroş*, *furoş*. If the initial member of the cluster does not involve an U element, U spreading does not take place and the empty position is realized as ‘i’ as in the forms *tropikal*, *dirosera*, *kıroki*, *gırosa*, *kılor*, *gılobal*.

c. The element I spreads from the root vowel as in the forms *fıren*, *bırezilya*, *pırens*, *fılegmon*, *bılender*, *pıleybek*, *tıren*, *türük*, *bülöf*, *pürömiyer* or from the consonant as in the form *pılaj* into the empty nucleus position. If there is a *k* or *g* sound in the initial member of the consonant cluster, the I harmony is blocked as in the forms *gırek*, *kırık*, *kılasör*, *külüp*.

6. Conclusion

In this paper, I have investigated the adaptation strategy of the foreign words with the initial and final consonant clusters in Turkish. I have focused on the realization of an empty nucleus which fails to be p-licensed (Charette, 1991). I argued that the realization of empty nuclei directly follows from the vowel harmony facts of the language, that is to say, the licensing constraints proposed by Charette & Göksel (1994, 1996). However, a number of further conditions can explain the realization of empty nucleus position in Turkish.

Note that our claim has implications on the phonological theory. Different from the generative phonology which proposes a derivational process involving an epenthesis rule followed by a set of vowel harmony rules, we have proposed that the issue involves only element spreading from the root segments into the empty nucleus position, simple and straightforward.

Semra Baturay
Boğaziçi University
semra_baturay@yahoo.com

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Non-identical pronoun doubling as rescue by PF spell out

Eefje Boef

This paper proposes a novel account of non-identical pronoun doubling in Dutch long-distance A-bar dependencies – specifically *wh*-questions and restrictive relative clauses – that features the pronoun *wat* in the higher clause and the pronoun *wie* or *die* in the lower clause. Assuming that A-bar pronouns have internal structure, I argue that such non-identical doubling is the result of subextraction of part of the pronoun, namely the operator in its specifier position. This operator is subextracted from the A-bar pronoun in the lower SpecCP and spelled out in its final landing site, the higher SpecCP. The subextracted operator is spelled out as *wat* by default – *wat* being the most underspecified A-bar pronoun in Dutch. The A-bar pronoun that is left behind by subextraction is spelled out as well (as *wie* or *die*), for reasons of recoverability and in order to overcome an otherwise illicit step in the derivation: rescue by PF spell out.¹

1. Introduction

In Standard Dutch long-distance *wh*-questions (*wh*-Qs) and restrictive relative clauses (RCs), an interrogative/relative pronoun (henceforth A-bar pronoun, following van Kampen 1997 and later work) introduces the higher clause, whereas the finite declarative complementizer *dat* ‘that’ introduces the lower clause. This is illustrated in (1) and (2) for a long-distance root *wh*-Q that questions a person (*wie* ‘who’), and for a long-distance RC with the common gender human antecedent *man* ‘man’ respectively.²

- (1) **Wie** denk je **dat** het gedaan heeft?
who think you that it done has
‘Who do you think has done it?’ [Standard Dutch]

¹This paper is an abridged version of parts of chapter 2 from my Ph.D. thesis (Boef forthcoming).

²I follow common practice and gloss the element *die* as relative pronoun (RP), but this in no way means that I take a clause that is introduced by *die* to always be a RC, nor does it mean that I take *die* to only be able to function as a relative pronoun.

- (2) Dat is de man **die** ik denk **dat** het gedaan heeft.
 that is the man RP I think that it done has
 ‘That is the man who I think has done it.’ [Standard Dutch]

It is well known that colloquial Dutch allows doubling of the A-bar pronoun (cf. Barbiers et al. 2009; Boef 2012 a.o.). The higher as well as the lower clause of a *wh*-Q or RC can be introduced by an A-bar pronoun, as illustrated for *identical* doubling in (3) and (4).^{3,4}

- (3) **Wie** denk je **wie** het gedaan heeft?
 who think you who it done has
 ‘Who do you think has done it?’ [colloquial Dutch]
- (4) Dat is de man **die** ik denk **die** het gedaan heeft.
 that is the man RP I think RP it done has
 ‘That is the man who I think has done it.’ [colloquial Dutch]

I take all long A-bar dependencies to be derived by successive-cyclic movement via SpecCP of the A-bar pronoun. I thus assume a *direct dependency approach* for *wh*-Qs (cf. McDaniel 1989; Barbiers et al. 2009 a.o.) and a *Head External Analysis* for RCs (cf. Quine 1960; Chomsky 1977; Smits 1988; Borsley 1997 a.o.; see Webelhuth 2011; Boef 2012, forthcoming for a recent overview of arguments in favor of this claim). I assume that for linearization purposes, all copies but the highest copy of the A-bar pronoun must delete at PF, cf. Nunes (2004).⁵ This is illustrated in (5) – where strikethrough indicates PF deletion/non-realization – and exemplified by the Standard Dutch examples in (1) and (2).

- (5) [_{CP} **pronoun**₁ ... [_{CP} ~~pronoun~~_T ... ~~pronoun~~_T ...]] **no doubling**

I assume that in certain cases the intermediate copy of the A-bar pronoun in the embedded SpecCP may escape this linearization requirement, as a consequence of which it can be

³The doubling data in this paper are taken from the SAND corpus (Barbiers et al. 2005, 2008) and from two large scale online questionnaire studies: the Meertens Panel Questionnaire (MPQ) data (cf. Boef forthcoming for details).

⁴As the MPQ data show that the doubling patterns in long-distance *embedded wh*-Qs – e.g. *Ze vroeg wie jij denkt dat het gedaan heeft* ‘She asked who you think has done it’ – are identical to the doubling patterns in *root wh*-Qs (as attested in the SAND corpus), I will not distinguish between the two constructions in this paper. For ease of exposition, all doubling patterns will be presented in *root wh*-Qs.

⁵Nunes (2004) argues that every link in a movement chain is computed for linearization in accordance with Kayne’s (1994) *Linear Correspondence Axiom* (LCA). According to the LCA a node A precedes a node B if and only if A asymmetrically *c*-commands B; in which *asymmetric c-command* is defined as follows: X asymmetrically *c*-commands Y if and only if X *c*-commands Y and Y does not *c*-command X (Kayne 1994:4). Under the assumption that two copies of one and the same element count as *identical* for linearization purposes (i.e. they are *non-distinct*), it follows that it is impossible to linearize structures containing identical copies, because an element intervening between two copies should simultaneously *follow* and *precede* the same element, which is logically impossible. Nunes (2004) accounts for the observation that in most cases the highest copy in a movement chain gets pronounced by arguing that in the standard case the copy with the most formal features checked gets phonetically realized, i.e. the choice for which copy in a movement chain is pronounced is governed by economy considerations.

spelled out, in addition to the head of the chain (cf. Nunes 2004; Barbiers et al. 2009 for details). This results in *identical doubling*, as illustrated in (6) and exemplified by the colloquial Dutch examples in (3) and (4).

- (6) [CP **pronoun**₁ ... [CP **pronoun**₁ ... ~~pronoun~~_T ...]]
multiple copy spell out: **identical doubling**

This paper is not in the first place concerned with *identical* pronoun doubling, but rather with *non-identical* pronoun doubling involving the A-bar pronoun *wat* ‘what’ in the higher clause and the ‘real’ A-bar pronoun *wie* or *die* in the lower clause. This is illustrated in (7) and (8) for a root *wh*-Q that questions a person and for a RC with the neuter gender human antecedent *meisje* ‘girl’ respectively.^{6,7} In the realm of non-identical doubling involving *wat*, I am only concerned with RCs to the neuter gender human antecedent *meisje*. The reason for this is that neuter antecedents independently allow *wat* as a relative pronoun, whereas *wat* as a relative pronoun hardly ever occurs with common gender human antecedents like *man* ‘man’.⁸

- (7) **Wat** denk je **wie/die** het gedaan heeft?
what think you who/RP it done has
‘Who do you think has done it?’ [colloquial Dutch]
- (8) Dat is het meisje **wat** ik denk <**die**/??**wie**> het gedaan heeft.
that is the girl what I think RP/who it done has
‘That is the girl who I think has done it.’ [colloquial Dutch]

The opposite patterns of (7) and (8) – namely doubling patterns in which *wat* surfaces in the lower clause, whereas *wie* or *die* introduces the higher clause – are not or only very marginally attested (see Boef forthcoming for details). This is illustrated in (9) and (10).

- (9) <?***Wie**/***die**> denk je **wat** het gedaan heeft?
who/RP think you what it done has
INTENDED: ‘Who do you think has done it?’
- (10) ?* Dat is het meisje **die** ik denk **wat** het gedaan heeft.
that is the girl RP I think what it done has
INTENDED: ‘That is the girl who I think has done it.’

⁶The construction in (7) with a *wh*-pronoun in the lower clause (i.e. *wat-wie*) is traditionally referred to as ‘partial *wh*-movement’ or ‘*wh*-scope marking’ (cf. Lutz et al. 2000; Felser 2001; Fanselow 2006 for an overview of different analyses of *wh*-scope marking).

⁷The data regarding non-identical doubling in RCs with the neuter gender human antecedent *meisje* are not completely clear (see Boef forthcoming for details and discussion). Especially the status of doubling pattern *wat-wie* is somewhat unclear, as indicated by ?? in (8) (this pattern seems to be only marginally attested, which is most likely due to the observation that *wie* is not commonly used as a relative pronoun to the antecedent *meisje*). Therefore, I will not further be concerned with this doubling pattern (nor with its mirror image *wie-wat*). Needless to say, further empirical research is necessary in order to determine the exact status of non-identical doubling patterns in RCs (with the antecedent *meisje*).

⁸There seems to be a matching requirement between the RC head and the pronoun in the left periphery of the RC.

I will argue that the internal structure of A-bar pronouns includes an *operator* – located in the specifier of the pronoun – that can move up by itself, and becomes PF visible when it does so. I will refer to this scenario as *subextraction* of the operator (i.e. the lack of *pied piping* of the full pronoun; subextraction and pied piping are two sides of the same coin). The subextracted operator is spelled out in its final landing site as *wat* ‘what’ – *wat* being the most underspecified A-bar pronoun in Dutch (cf. Postma 1994; Bennis 1995 a.o.). Since deletion of the pronoun that is left behind by subextraction of the operator in the lower SpecCP would lead to a *recoverability* problem, it needs to be spelled out. I argue that in doing so, a violation of the *Condition on Extraction Domain* (CED, Huang 1982) or the *Freezing Principle* (Wexler & Culicover 1980) is circumvented. This particular means to salvage an otherwise illicit step in the derivation (cf. van Craenenbroeck & van Koppen 2008), I will refer to as *rescue by PF spell out* – the logical counterpart of *rescue by PF deletion* (Bošković 2011). Seeing as spell out of the pronoun *subsumes* spell out of the operator (i.e. I take A-bar pronouns to spell out phrases, cf. Weerman & Evers-Vermeul 2002; Barbiers et al. 2009 a.o.), the intermediate chain link will surface as a full pronoun, as illustrated in (11).

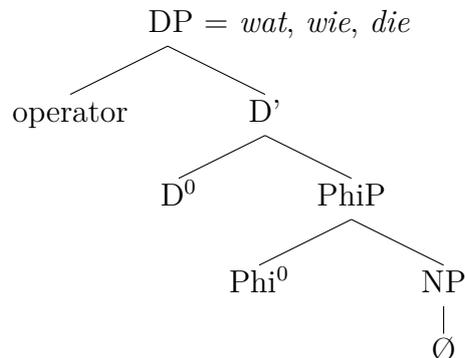
- (11) $[_{CP} \text{operator}_1 \dots [_{CP} \text{pronoun}_1 \dots \text{pronoun}_T \dots]]$
 subextraction plus double spell out: **non-identical doubling**

The organization of this paper is as follows. The next section makes explicit my assumptions about the internal structure and feature specification of the relevant A-bar pronouns (*wat*, *wie* and *die*). Section 3 proceeds with the analysis of non-identical doubling by presenting my assumptions about the notions *subextraction* and *lexicalization*, and section 4 focuses in detail on the nature of the *rescue by PF spell out* mechanism. As my analysis of doubling in Dutch long-distance A-bar dependencies builds and improves on the analysis of doubling in Dutch long-distance root *wh*-Qs as proposed by Barbiers, Koenenman & Lekakou (2009), section 5 briefly discusses this analysis of doubling and shows why it does not extend to cover doubling in RCs, in contrast to my analysis. Finally, section 6 gives a summary and concludes the paper.

2. The internal structure of A-bar pronouns

I follow a large body of literature and assume that pronouns have internal structure (e.g. Cardinaletti 1994; Ritter 1995; Wiltschko 1998; Cardinaletti & Starke 1999; Koopman 1999; Harley & Ritter 2002; Déchaine & Wiltschko 2002; Wiltschko 2002; Rooryck 2003; van Koppen 2005), and that pronouns spell out phrases/non-terminals (cf. Weerman & Evers-Vermeul 2002; Neeleman & Szendrői 2007; Barbiers et al. 2009 a.o.). The structure of the relevant A-bar pronouns (*wat*, *wie* and *die*) that I assume is given in (12).

(12) The structure of A-bar pronouns



Taking A-bar pronouns to be DPs is compatible with the fact that in RCs the gap inside the RC – where the relative pronoun arguably originates under a Head External Analysis of RCs – acts as a DP (see e.g. Borsley 1997). The fact that *wat*, *wie* and *die* may all function as relative pronouns thus suggests that they are indeed DPs. Further evidence in favor of the claim that A-bar pronouns are DPs, comes from *binding*. That is, if A-bar pronouns are *pro-DPs* in the sense of Déchaine & Wiltschko (2002), they should function as R-expressions with respect to binding. This prediction is borne out, as illustrated in (13) for the A-bar pronoun *die*: *die* is subject to Condition C (13a), and it does not allow for a bound variable interpretation (13b).⁹

- (13) a. Jan_i denkt dat waarschijnlijk die_{*i/j} de wedstrijd zal winnen.
 Jan thinks that probably that the game will win
 ‘Jan thinks that probably he will win the game.’
- b. Iedere jongen_i denkt dat die vrouw die_{*i/j} aantrekkelijk vindt.
 every boy thinks that that woman that attractive finds
 ‘Every boy thinks that that woman finds him attractive.’

[Corver & van Koppen 2008:10]

Suggestive evidence in favor of the DP status of *wh*-pronouns in Dutch comes from the *categorial matching effect* in free relative clauses (FRCs, cf. Groos & van Riemsdijk 1981; van Riemsdijk 2006 a.o.). This effect requires the categorial status of the *wh*-phrase in the left periphery of the FRC to be identical to the categorial status of the whole FRC as required by the matrix clause. This is illustrated by the paradigm in (14). The adjective *verliefd* ‘in love’ selects for a PP and only in case the *wh*-phrase introducing the FRC is a PP is the structure grammatical: (14a) vs. (14c). Similarly, the verb *kussen* ‘to kiss’ selects for a DP and only when the *wh*-phrase in the left periphery of the FRC is a DP is the structure grammatical: (14b) vs. (14d). In the sentences in (15), the FRC as a whole acts as a DP, i.e. it occurs in a position otherwise restricted to a DP argument. Following the logic above, this means that the *wh*-phrase introducing the FRC must be a DP as well.

⁹The binding theoretic status of *wh*-pronouns cannot be tested.

- (14) a. Jan is verliefd [_{PP} [_{PP} op wie] Kees verliefd is t_{PP}].
 Jan is in love on who Kees in love is
 ‘Jan is in love with who(ever) Kees is in love.’
- b. Jan wil kussen [_{DP} [_{DP} wie] Kees kust t_{DP}].
 Jan wants kiss who Kees kisses
 ‘Jan wants to kiss who(ever) Kees kisses.’
- c. * Jan is verliefd [_{PP} [_{DP} wie] Kees kust t_{DP}].
 Jan is in love who Kees kisses
- d. ?* Jan wil kussen [_{DP} [_{PP} op wie] Kees verliefd is t_{PP}].
 Jan wants kiss on who Kees in love is
- (15) a. Ik eet [_{DP} wat jij eet].
 I eat what you eat
 ‘I eat what(ever) you eat.’
- b. Jan interviewt [_{DP} wie Kees interviewt].
 Jan interviews who Kees interviews
 ‘Jan interviews who(ever) Kees interviews.’

A-bar pronouns have a DP layer in which (in)definiteness is expressed and a PhiP layer in which phi-features are expressed. Moreover, A-bar pronouns contain an operator that is the driving force behind movement to the left periphery. This operator is located in the SpecDP position, cf. Szabolcsi (1994) a.o. who argues that the specifier of DP is an operator position. This fits in perfectly with the often noted parallelism between DP and CP (cf. Szabolcsi 1987, 1994; Cardinaletti & Starke 1999; Haegeman & Ürögdi 2010 amongst many others), as SpecCP is the designated position for operator movement in the clausal domain.

As regards the feature specification of the A-bar pronouns *wat*, *wie* and *die*, I oversimplify a bit, because the precise feature specifications (and lexicalization possibilities) of these pronouns are irrelevant in the context of this paper (but see Boef forthcoming for details). I take the observation that these pronouns can have more than one function and may appear in more than one syntactic configuration – e.g. *wie* can function as a relative pronoun *and* as an interrogative pronoun – to mean that these A-bar pronouns are morphosyntactically *underspecified* (i.e. I assume an underspecification approach to ‘multipurpose pronouns’, cf. Postma 1994; Rooryck 2003 a.o.). More specifically, I assume – following existing literature – that *wat* is completely underspecified (cf. Postma 1994; Bennis 1995; Barbiers et al. 2009), and that whereas pronouns *wie* and *die* are fairly underspecified as well, they are (at least) specified as [human]. Pronouns *wie* and *die* are crucially *not* in a subset/superset relation (in contrast to what is assumed by Barbiers et al. 2009, cf. section 5). I furthermore assume that all A-bar pronouns contain an operator. A *late insertion* model of morphology (e.g. *Distributed Morphology*, cf. Halle & Marantz 1993, Halle & Marantz 1994, Harley & Noyer 1999) – according to which phonological and morphological information becomes available only *after* the syntactic component finished the derivation – can account for the observation that (for some speakers) pronouns *wie*

and *die* are interchangeable in RCs with a human antecedent and in *wh*-Qs that question a person: both pronouns are equally compatible with the structure (containing a [human] feature) that has to be lexicalized. Only in the higher clause of a *wh*-Q can pronoun *die* (and non-*wh*-pronouns more generally) not occur. I argue this is due to a *wh*-requirement on the introduction of *wh*-Qs.

3. Subextraction and spell out

Following in part a proposal by Barbiers et al. (2009), I assume that syntactic copying can be *partial* (cf. section 5, and see also Cheng 2000 a.o.). That is to say, instead of copying a full constituent (*full* copying), the syntactic operation copying may also target a subconstituent and (re)merge it in a higher position. In the structure of A-bar pronouns as proposed above, this means that copying can either target the whole DP or a subpart of it, namely the operator in SpecDP. Put differently, seeing as the operator is the driving force behind movement to the left periphery, either it moves by itself (*subextraction*) or it *pied pipes* the entire DP. The reason why both DP and the operator in SpecDP can be the target for copying, is that in their position in the lower SpecCP, they are *equally local* to the higher SpecCP (cf. *equidistance*, Chomsky 1995).¹⁰ Since spell out of a copy in thematic base position is impossible (for whatever reason, cf. Nunes 2004; Thoms 2010 o.a. for some discussion on *wh*-copies), subextraction of the operator from an A-bar pronoun in base position leads to a recoverability problem. Subextraction of the operator thus only targets elements in SpecCP (cf. *infra* for some discussion).

At the point at which the operator inside the pronoun at the edge of the lower CP domain needs to move up, two possibilities emerge: either the whole pronoun (containing the operator that triggers movement) moves up (pied piping), or only the operator itself moves up (subextraction). The two possible chains that we are left with are given in (16).

- (16) a. $[_{CP} \text{pronoun}_1 \dots [_{CP} \text{pronoun}_1 \dots \text{pronoun}_1 \dots]]$ full copying
 b. $[_{CP} \text{operator}_1 \dots [_{CP} \text{pronoun}_1 \dots \text{pronoun}_1 \dots]]$ subextraction

As was pointed out in the introduction to this paper, the chain in (16a) can result either in the spell out of the highest chain link (no doubling), or in the spell out of the highest *and* the intermediate chain link (identical doubling, cf. Nunes 2004; Barbiers et al. 2009). This is repeated here in (17).

- (17) a. $[_{CP} \mathbf{pronoun}_1 \dots [_{CP} \mathbf{pronoun}_1 \dots \mathbf{pronoun}_1 \dots]]$ no doubling (= (5))
 b. $[_{CP} \mathbf{pronoun}_1 \dots [_{CP} \mathbf{pronoun}_1 \dots \mathbf{pronoun}_1 \dots]]$ identical doubling (= (6))

¹⁰Where *equally local* is formulated as follows: Y and Z are equally local to X if and only if (i) X c-commands both Y and Z, and (ii) the set of nodes that c-command Y is identical to the set of nodes that c-command Z (van Koppen 2005:14).

As for the linearization or spell out of the chain in (16b), I assume that the operator becomes PF visible when extracted (cf. Barbiers et al. 2009 and references cited therein). More specifically, when the operator is subextracted from the A-bar pronoun, it is spelled out as *wat*, because *wat* is the most underspecified A-bar pronoun in Dutch: it only contains an operator (cf. *supra*). Assuming that a single lexical item *wat* may spell out a full DP as well as an operator, suggests that lexicalization is governed by some sort of *Superset Principle*. The Superset Principle, as formalized in the Nanosyntax framework by Starke (unpublished work) and Caha (2007), is given in (18).¹¹

(18) *The Superset Principle* (Caha 2007:3, cf. Ramchand 2008a,b)

The phonological exponent of a Vocabulary Item is inserted into a node if the item matches all or a superset of the grammatical features specified in the node. Insertion does not take place if the Vocabulary Item does not contain all features present in the node. Where several Vocabulary Items meet the conditions for insertion, the item containing less features unspecified in the terminal morpheme must be chosen.

According to the Superset Principle, a Vocabulary Item can thus spell out a syntactic structure that is smaller than itself. Put differently, the formulation of the Superset Principle in (18) entails that all syntactic features and syntactic structure should be lexicalized (*exhaustive lexicalization*; only features of the lexical entries might be ignored). Whenever a feature of a lexical entry does not match a feature in the syntactic structure, this feature is referred to as being *underassociated*. The Superset Principle thus gives a handle for understanding the observation that one and the same pronoun can occur in different syntactic environments (multipurpose pronouns): features in the lexical entry of the pronoun can be underassociated in certain contexts, but the lexical entry of the pronoun itself is invariant. There is thus no need to stipulate multiple lexical entries for a single pronoun.

The Superset Principle is inherently incompatible with an *underspecification* approach to syntactic features. Elements that can have more than one function and may appear in more than one context cannot be *underspecified*, but need to be *overspecified*. For example, being able to occur with singular as well as with plural antecedents, does not mean being underspecified for number, but rather being specified as [singular] *and* as [plural] (i.e. *overspecification*). We thus need an alternative mechanism of Vocabulary Item insertion that is compatible with an underspecification approach to multipurpose pronouns (cf. *supra*). More specifically, we need a mechanism that selects the Vocabulary Item that matches the *most features* in the feature bundle to be lexicalized (cf. the *Subset Principle*, standardly assumed in the Distributed Morphology framework, see footnote 12), while at the same time allows features/structure of the Vocabulary Item to not match features/structure in the syntactic structure (cf. *underassociation* and the Superset Principle). Such a principle should look something like (19).¹²

¹¹The Nanosyntax approach to language was initiated by Michal Starke and further developed at the University of Tromsø, cf. the collection of papers in Svenonius et al. (2009), and see <http://nanosyntax.auf.net/blog/>.

¹²Notice that (19) basically is the Subset Principle (i) *minus* the condition that *insertion does not*

(19) *The Closest Match Principle*

The phonological exponent of a Vocabulary Item is inserted into a node if the item matches *one or more* of the grammatical features specified in the node. Where several Vocabulary Items meet the conditions for insertion, the item that matches the *greatest number* of features specified in the node and that contains the *smallest number* of features unspecified in the node must be chosen.

Whereas all A-bar pronouns contain an operator, as a result of which all of them are *possible* lexicalizations of the operator, the Closest Match Principle will select *wat* as the most optimal realization of the operator: *wat* has the least features *underassociated* in its lexical entry (*least junk*). Put differently, the Closest Match Principle chooses *wat* as the best match for the operator.

In addition to the operator in the higher SpecCP, the copy of the A-bar pronoun in the embedded SpecCP needs to be spelled out as well for reasons of *recoverability*, i.e. the features present in the intermediate copy need to be spelled out.¹³ As spell out of the A-bar pronoun *subsumes* spell out of the operator – recall that pronouns are assumed to spell out phrases – this intermediate copy will always surface as a full pronoun. This is illustrated in (20).

$$(20) \quad [_{CP} \text{operator}_1 \dots [_{CP} \text{pronoun}_1 \dots \text{pronoun}_T \dots]]$$

non-identical doubling (= (11))

We thus have an account for the grammatical doubling patterns involving *wat* in a long-distance *wh*-Q that questions a person and a long-distance RC with a human antecedent that independently allows *wat* as a relative pronoun, i.e. *meisje* ‘girl’. We start out with a DP structure containing an operator and the feature [human]. This DP moves up to the lower SpecCP, from which the operator subextracts and moves to the higher SpecCP. The operator higher up is spelled out as *wat*, and the DP in the lower CP domain is spelled out as *wie* or *die*: both lexical items match the [human] feature equally well. This is abstractly illustrated in (21).

$$(21) \quad [_{CP} \text{operator} \dots [_{CP} \text{DP}_{[\text{operator}, [\text{human}]]} \dots]]$$

wat *wie/die*

take place if the Vocabulary item contains features not present in the morpheme and plus the idea that non-terminal nodes can be lexicalized as well (cf. Caha 2007 for discussion) – recall that I assume A-bar pronouns to spell out non-terminals.

(i) *The Subset Principle* (Halle 1997)

The phonological exponent of a Vocabulary Item is inserted into a morpheme in the terminal string if the item matches all or a subset of the grammatical features specified in the terminal morpheme. Insertion does not take place if the Vocabulary Item contains features not present in the morpheme. Where several Vocabulary Items meet the conditions for insertion, the item matching the greatest number of features specified in the terminal morpheme must be chosen.

¹³Notice that this ‘multiple’ spell out is not in violation of the LCA (Kayne 1994, and see footnote 5), as the copies are not (featurally) identical (operator vs. DP).

The ungrammaticality of the patterns in (9) and (10), here repeated as (22) and (23) – in which *wat* introduces the lower clause and *wie* or *die* introduces the higher clause – can be accounted for in two ways. In the first scenario, these sentences involve full copying and double spell out, in which case their ungrammaticality is explained by the fact that *wat* cannot spell out a DP that contains an operator and the feature [human]: *wat* is not specified as [human] (i.e. the insertion of *wat* is blocked by *die* or *wie*, which are specified as [human]). In the second scenario, these sentences are a violation of the Inclusiveness Condition (Chomsky 1995:228), which states that outputs cannot contain anything beyond their inputs: the feature [human] is added to the operator in the course of the derivation. Notice furthermore that pattern *die-wat* in (9)/(22) is ruled out by the fact that *die* cannot satisfy the *wh*-requirement on the introduction of *wh*-Qs.

- (22) <?***Wie**/***die**> denk je **wat** het gedaan heeft?
 who/RP think you what it done has
 INTENDED: ‘Who do you think has done it?’ (= (9))

- (23) ?* Dat is het meisje **die** ik denk **wat** het gedaan heeft.
 that is the girl RP I think what it done has
 INTENDED: ‘That is the girl who I think has done it.’ (= (10))

At this point, one might object that subextraction of the operator from DP violates well established constraints on movement. More specifically, subextraction as in (20) constitutes a violation of the *Condition on Extraction Domain* (CED, Huang 1982) or the *Freezing Principle* (Wexler & Culicover 1980, cf. also Corver 2006), according to which a phrase that has undergone movement becomes an island for extraction. In order to obviate such a locality violation one might delete the copy that induces the violation: *rescue by PF deletion* (cf. Bošković 2011). However, since deletion of the offending copy in (20) (i.e. the copy of the pronoun in the lower SpecCP) would lead to a recoverability problem, this copy needs to be spelled out. I argue that as a result of the spell out of the offending copy, a violation of the CED/Freezing Principle is ameliorated. Put differently, the copy of the pronoun in the lower SpecCP in (20) acts as an *intrusive* resumptive pronoun (Sells 1984) in the sense that it obviates a CED/Freezing Principle violation. I call this mechanism *rescue by PF spell out* – the logical counterpart of *rescue by PF deletion*. See section 4 for details.

In sum, I claim that pronoun doubling involving an instance of *wat* in the higher clause of a long-distance *wh*-Q or RC is the result of subextraction of the operator from an A-bar pronoun in the embedded SpecCP. This operator is spelled out as *wat*, and the pronoun from which it is extracted is spelled out as *die* or *wie*, for reasons of recoverability and in order to obviate a violation of the CED/Freezing Principle.

4. *Rescue by PF spell out*

Ross (1969) was the first to argue that ellipsis may ameliorate island effects, as illustrated in (24) for sluicing. The example in (24a) shows that movement of *which one of my*

friends violates the Complex NP Constraint (CNPC), giving rise to ungrammaticality. The example in (24b), on the other hand, shows that in case the category containing the island violation is deleted under ellipsis, the sentence becomes fine.

- (24) a. * She kissed a man who bit one of my friends, but Tom does not realize which one of my friends she kissed a man who bit.
 b. ? She kissed a man who bit one of my friends, but Tom does not realize which one of my friends. [Ross 1969:276, cited in Bošković 2011:2]

Bošković (2011) proposes to extend the application domain of the *rescue by PF deletion* approach to all kinds of locality of movement violations.¹⁴ Most importantly for present purposes, Bošković argues that next to ellipsis, *copy deletion* may ameliorate island violations as well; this accounts for Chomsky's (1995, 2001) generalization that traces do not count as interveners for relativized minimality effects. To illustrate this claim, consider the sentences in (25), which show experiencer blocking in Italian. Sentence (25a) shows that movement of *Gianni* across *a Maria* yields a relativized minimality violation (both are A-specifiers). Sentence (25b) shows that when the copy that induces the violation is deleted, the sentence becomes grammatical. Island violations are indicated by a *; if a * remains in the final structure, the sentence is ungrammatical.

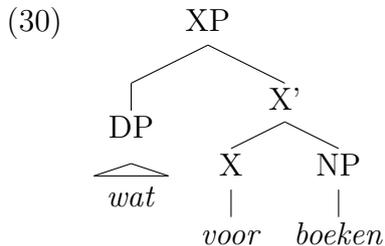
- (25) a. * Gianni₁ sembra a Maria* [t₁ essere stanco].
 Gianni seems to Maria to be ill
 'Gianni seems to Maria to be ill.'
 b. A Maria₂, Gianni₁ sembra a Maria₂* [t₁ essere stanco].
 to Maria Gianni seems to Maria to be ill
 'To Maria, Gianni seems to be ill.' [Italian, Bošković 2011:4]

As mentioned in the previous section, I propose an operation that ameliorates movement violations at PF by means of spell out: *rescue by PF spell out*. More specifically, I take non-identical doubling involving *wat* 'what' in long-distance A-bar dependencies to be the result of subextracting the operator from the pronoun in the embedded CP domain. This subextraction is a violation of the CED and/or the Freezing Principle. Seeing as *deletion* of the offending copy (*rescue by PF deletion*) is not an option because it would give rise to a recoverability problem, I suggest that the copy is *spelled out* instead. By spelling out the full A-bar pronoun (that contains a copy of the subextracted operator), a violation of the CED/Freezing Principle is *repaired*. Doubling in constructions in which the operator subextracts from an A-bar pronoun is thus predicted to be obligatory. This prediction is borne out, as illustrated in (26).

- (26) **Wat**₁ denk je *(**wie**₁) het gedaan heeft?
 what think you who it done has
 'Who do you think has done it?' [colloquial Dutch]

¹⁴Locality of movement thus needs to be partly representational, as locality violations may be ameliorated at PF. Put differently, at least some aspects of locality of movement need to be attributed to PF (cf. also Pesetsky 1998 a.o. for a PF theory of locality).

- c. * **Wat** denk je [[**voor boeken**] hij heeft gelezen]?
 what think you for books he has read



Just like with doubling involving A-bar pronouns, subextraction of the operator is not possible from base position (recall that *wh*-phrases cannot be spelled out in base position). If it were, double spell out (of the operator in the highest SpecCP and the A-bar pronoun in base position) would be required for recoverability reasons, and the construction in (31) would be grammatical, contrary to fact.

- (31) * **Wat** denk je [dat hij [**wat voor boeken**] heeft gelezen]?
 what think you that he what for books has read

Similarly, subextraction of the operator (and double spell out) is impossible from the subject in SpecTP. This is illustrated by the sentences in (32): subextraction of the operator from the subject in SpecTP leads to ungrammaticality (32a), whereas subextraction of the operator from the subject in SpecCP is attested (32b). More generally, subextraction of the operator (and subsequent double spell out) is only possible from SpecCP, i.e. subextraction of the operator is only possible from an A-bar position.¹⁷ At this point, I have no insight to offer as to why this is the case.

- (32) a. * **Wat** denk je [dat [**wat voor jongens**] dit boek hebben gelezen]?
 what think you that what for boys this book have read
- b. **Wat** denk je [[**wat voor jongens**] dit boek hebben gelezen]?
 what think you what for boys this book have read
 ‘What kind of boys do you think read this book?’ [colloquial Dutch]

I assume that PF spell out is only licensed in case PF deletion would lead to a recoverability problem. Interestingly, it is possible to subextract the A-bar pronoun *wat* from the *wat voor XP* in its thematic base position.¹⁸ Since this subextraction does not lead to

¹⁷As pointed out to me by an anonymous reviewer, it is also conceivable that subextraction of the operator is in fact possible from a non-A-bar position (like SpecTP) but that for some reason the repair strategy at PF (in terms of spell out) cannot apply to an element in a non-A-bar position. However, if first conjunct clitic doubling (FCCD) is an instance of rescue by PF spell out (cf. van Craenenbroeck & van Koppen 2008, and see main text), it cannot be the case that rescue by PF spell out is restricted to A-bar positions. This suggests that the claim that subextraction of the operator is only possible from an A-bar position holds true. Future research should reveal why an operator can only subextract from an element in an A-bar/operator position.

¹⁸It is well known that the *wat voor XP* construction (as in (30)) allows subextraction of its specifier (*wat*), in violation of the Left Branch Condition (cf. Bennis 1983, 1995; den Besten 1985; Corver 1991, 2003 a.o.). I have no insight to offer as to why this is the case.

a recoverability problem (i.e. recoverability is ensured by spelling out the A-bar pronoun *wat* in the higher SpecCP and spelling out *voor XP* in base position), we thus predict that subextraction of the A-bar pronoun from base position does not lead to spell out of the full constituent from which subextraction takes place. This prediction is borne out, as illustrated by (33).¹⁹ Notice that subextraction from base position does not constitute a violation of the CED/Freezing Principle, as a result of which (33) is perfectly grammatical.

- (33) **Wat** denk je [dat hij [**voor boeken**] heeft gelezen]?
 what think you that he for books has read
 ‘What kind of books do you think that he read?’ [Standard Dutch]

Unlike subextraction of pronoun *wat* from direct object base position, subextraction of pronoun *wat* from subject position (SpecTP) is severely degraded (or ungrammatical), as illustrated in (34) (cf. Bennis 1995:32).

- (34) ?* **Wat** denk je [dat [**voor jongens**] dit boek hebben gelezen]?
 what think you that for boys this book have read
 ‘What kind of boys do you think have read this book?’

The degraded grammaticality (or ungrammaticality) of (34) is in fact predicted: because subextraction of the A-bar pronoun from the *wat voor XP* in SpecTP does not lead to a recoverability problem (cf. *supra*), PF spell out cannot apply to salvage the CED/Freezing Principle violation that is caused by subextraction from derived position. The difference in grammaticality between subextraction of the A-bar pronoun from the direct object base position (33) and subextraction of the A-bar pronoun from the derived subject position (34) is thus explained in terms of the presence or absence of a CED/Freezing Principle violation. Similarly, the observation that it is impossible to subextract the A-bar pronoun from the *wat voor XP* in SpecCP, as illustrated in (29c), can be explained as follows: it constitutes a violation of the CED/Freezing Principle that cannot be overcome by PF spell out, because recoverability is ensured by spelling out the A-bar pronoun *wat* higher up and the *voor XP* lower down.

So, I take PF deletion to be more economical than PF spell out (cf. Nunes 2004 a.o.): only when PF deletion cannot apply due to the lack of recoverability (deletion upon

¹⁹As pointed out to me by Hans Bennis, some speakers accept the sentence in (i). This is expected by my analysis of doubling: after subextraction from the complex *wh*-phrase in thematic base position, the A-bar pronoun successive-cyclically moves up to the higher SpecCP. If only the head of the movement chain of the A-bar pronoun in this construction is spelled out (i.e. the copy of the A-bar pronoun in the highest SpecCP), we get the construction in (33). However, if multiple copies of the movement chain of the A-bar pronoun are spelled out (i.e. the copy of the A-bar pronoun in the higher SpecCP and the copy of the A-bar pronoun in the lower SpecCP), we get the construction in (i). Alternatively, the construction in (i) can be derived by first subextracting the A-bar pronoun from the *wat voor XP* from thematic base position, and then subextracting the operator from the A-bar pronoun in the embedded SpecCP.

- (i) **Wat** denk je [**wat** hij **voor boeken** heeft gelezen]?
 what think you what he for books has read
 ‘What kind of books do you think that he read?’ [colloquial Dutch]

recoverability), PF spell out can apply. This means that rescue by PF spell out can only salvage a derivation that involves *subextraction*, because only in that case can PF deletion lead to a recoverability problem (but this is not necessary, cf. *supra*). The only way to repair a derivation in such cases is to spell out the phrase from which an element has subextracted.

5. *An alternative account of doubling: Barbiers, Koenenman & Lekakou (2009)*

My analysis of doubling in long-distance A-bar dependencies is highly inspired by the analysis of Barbiers, Koenenman & Lekakou (2009) (henceforth BKL) regarding doubling in Dutch long-distance root *wh*-Qs. That is to say, many aspects of BKL's analysis of doubling also feature prominently in my analysis of doubling. However, whereas BKL's analysis does not carry over to doubling in RCs, my analysis provides a unified account of the doubling patterns in RCs and *wh*-Qs.

BKL start from the assumption that all attested patterns of pronoun doubling in Dutch, which are given here in (35) for root *wh*-Qs, are instances of long-distance movement via SpecCP plus multiple copy spell out (cf. Nunes 2004).

- (35) a. **Wie** denk je **wie** ik gezien heb?
 who think you who I seen have
 'Who do you think I have seen?' [Drenthe Dutch]
- b. **Wie** denk je **die** ik gezien heb?
 who think you RP I seen have
 'Who do you think I have seen?' [North-Holland Dutch]
- c. **Wat** denk je **wie** ik gezien heb?
 what think you who I seen have
 'Who do you think I have seen?' [Overijssel Dutch]
- d. **Wat** denk je **die** ik gezien heb?
 what think you RP I seen have
 'Who do you think I have seen?' [Overijssel Dutch, BKL 2009:2]
- (36) a. ***Wie** denk je **wat** ik gezien heb?
 who think you what I seen have
- b. ***Die** denk je **wie** ik gezien heb?
 RP think you who I seen have
- c. ***Die** denk je **wat** ik gezien heb?
 RP think you what I seen have
 [BKL 2009:3]

Based on the patterns in (35) and their ungrammatical counterparts in (36), BKL put forward the generalization that in a syntactic movement chain, the higher chain link can never be more specified than a lower chain link (Barbiers 2006). This generalization

follows from the following assumptions: (i) pronouns have internal structure and spell out phrases/non-terminals (cf. Weerman & Evers-Vermeul 2002; Neeleman & Szendrői 2007), (ii) syntactic copying can optionally be *partial* (cf. Cheng 2000 a.o.), and (iii) PF spell out is all or nothing, i.e. there is no partial spell out at PF (in contrast to the *scattered deletion* approach, cf. Ćavar & Fanselow 1997; Nunes 2004). The specific structure BKL assume for the Dutch pronouns *die*, *wie* and *wat* is given in (37). As I will show that this structure cannot be correct – i.e. *wie* and *die* are not in a subset/superset relation – I will not go into the argumentation BKL provide to argue for this particular structure.

- (37) a.
- $$\begin{array}{c}
 \text{DP} = \textit{die} \\
 \swarrow \quad \searrow \\
 \text{D} \quad \quad \text{PhiP} = \textit{wie} \\
 \quad \quad \swarrow \quad \searrow \\
 \quad \quad \text{Phi} \quad \quad \text{QP} = \textit{wat}
 \end{array}$$
- b. *wie* = *wat* + phi-features
c. *die* = *wie* + definiteness

BKL assume that *identical doubling* is the result of full copying of the pronoun and spell out of multiple copies in the movement chain of this pronoun. *Non-identical doubling* on the other hand, is the result of *partial copying*.²⁰ Partial copying may target a subpart of the structure in (37), resulting in the spell out of the subextracted element in the higher CP and the spell out of the *full* copy lower down, for reasons of recoverability (notice that *full* spell out of the lower copy is also ensured by the assumption that PF spell out is all or nothing, cf. *supra*). More specifically, starting out with a DP, partial copying may target PhiP, giving rise to the *wie-die* pattern as can be seen in (38a), or it may target QP, giving rise to the *wat-die* pattern as illustrated in (38b). The *wat-wie* pattern is the result of partial copying targeting the QP part of a PhiP, as illustrated in (38c).

- (38) a. $[_{CP} [\text{PhiP} [\text{QP}]] \dots [_{CP} [\text{DP} [\text{PhiP} [\text{QP}]]] \dots \overline{[\text{DP} [\text{PhiP} [\text{QP}]]}] \dots]]$
= **wie** = **die**
- b. $[_{CP} [\text{QP}] \dots [_{CP} [\text{DP} [\text{PhiP} [\text{QP}]]] \dots \overline{[\text{DP} [\text{PhiP} [\text{QP}]]}] \dots]]$
= **wat** = **die**
- c. $[_{CP} [\text{QP}] \dots [_{CP} [\text{PhiP} [\text{QP}]] \dots \overline{[\text{PhiP} [\text{QP}]]} \dots]]$
= **wat** = **wie**

The ungrammatical doubling patterns in (36) are cases of full copying and adding structure and features during the course of the derivation, in violation of the Inclusiveness Condition. This is abstractly illustrated in (39).

²⁰What BKL refer to as *partial copying*, I refer to as *subextraction*. However, my subextraction is more restricted than BKL's partial copying: it can only target the operator in SpecDP.

wh-Q, cf. *supra*) *wie* and *die* fit the antecedent equally well. More specifically, both *wie* and *die* can equally well spell out the human feature; *wie* and *die* are crucially not in a subset/superset relation, contra (37). The non-occurrence of doubling pattern *die-wie* in *wh*-Qs is independently accounted for by the *wh*-requirement on the introduction of *wh*-Qs (cf. *supra*). Put differently, unlike BKL, I argue that doubling pattern *die-wie* can be generated by the grammar (as can be seen by the grammaticality of (41d)), but that this pattern is independently ruled out in *wh*-Qs.

Similarly, the (marginal) occurrence of doubling pattern *wat-die-wie* in a long-distance *wh*-Q with multiple embeddings, as illustrated in (42), is problematic for the analysis of BKL. As *wie* is assumed to be a subpart of *die* (cf. (37)), in a single movement chain in which both *wie* and *die* surface, it should never be possible to find *die* in a higher clause than *wie*, as that would constitute a violation of the Inclusiveness Condition. Under my analysis of doubling, this doubling pattern is in fact predicted to exist, because *die* and *wie* can equally well spell out the human feature.

- (42) **Wat** denk je **die** Jan zei **wie** het gedaan heeft?
 what think you RP Jan said who it done has
 ‘Who do you think Jan said has done it?’ [colloquial Dutch, MPQ data]

6. Summary and conclusion

Building and improving on a proposal by Barbiers, Koenenman & Lekakou (2009) on doubling in long-distance root *wh*-Qs in Dutch, this paper proposed a novel account of non-identical pronoun doubling in long-distance A-bar dependencies, namely *wh*-questions and restrictive relative clauses. Following existing literature, I proposed that A-bar pronouns spell out phrases (DPs), and that their internal structure includes an *operator* that is located in the specifier of the pronoun (SpecDP). At the point in the derivation when the A-bar pronoun has reached the embedded SpecCP, two possibilities emerge: either the pronoun itself (pied piping) or the operator in its specifier (subextraction) moves up to the higher SpecCP. The latter scenario results in doubling: the operator higher up is spelled out (as *wat*) and the pronoun from which the operator subextracted needs to be spelled out as well (as *wie* or *die*), for recoverability reasons and in order to ameliorate the locality violation that is induced by subextraction of the operator from the pronoun in SpecCP (rescue by PF spell out). In short, my analysis takes non-identical doubling to be the result of subextraction and double spell out, and attributes variation in doubling to the availability of subextraction or pied piping (no/identical doubling vs. non-identical doubling), and different lexicalization options for the A-bar pronoun (*wie* or *die*).

Within the Minimalist Program (Chomsky 1995 *et passim*), syntactic principles are assumed to be invariable. Apparent syntactic (micro)variation therefore needs to be reduced to the lexicon/vocabulary (i.e. variation in morphosyntactic features) and/or the level of PF (i.e. variation in the lexicalization of a structure). As suggested by this paper, part of the microvariation regarding non-identical doubling cannot be reduced to the lexicon or PF. Rather, this variation must be accounted for in syntax, namely in terms of the

optionality of subextraction or pied piping. The observation that some (micro)variation needs to be accounted for in terms of the size of a constituent that moves/copies in syntax is not new (cf. Barbiers 2009; Barbiers et al. 2009). In fact, my proposal fits in nicely with other proposals that attribute syntactic variation to the so-called *pied piping parameter*, cf. Koster (2000); Koopman & Szabolcsi (2000) (see also Ross 1967; van Riemsdijk 1978).

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Analytic causatives –
A German-Italian comparative approach

Cinzia Campanini & Marcel Pitteroff

In this paper we approach the analytic causative construction (ACC) from a comparative perspective. Based on a comparison between Italian and German, we arrive at certain similarities that suggest an underlying, uniform syntactic structure. Three differences between the languages under investigation, such as the obligation effect, word order, and case marking are used to adjust the general structure in certain ways. Ultimately, word order and case differences are shown to be reducible to one particular structural difference, i.e. the embedding of a VoiceP/AppIP by the causative predicate.

1. Introduction

(Indirect) causation in many languages is expressed by the so-called periphrastic or analytic causative construction (ACC henceforth; see, for example, Aissen 1979 for Turkish and English; Alsina 1992 for English; Reis 1976; Huber 1980; Grewendorf 1983; Gunkel 1999, 2003 for German; Kayne 1975; Rouveret & Vergnaud 1980; Burzio 1986; Guasti 1993; Folli & Harley 2007 for Italian and/or French). In contrast to lexical (direct) causatives, ACCs involve a separate causative (light) verb, which may either appear as a bound morpheme on the lexical predicate (morphological causative, see Baker 1988), or as a free morpheme. In the latter case, the lexical predicate surfaces as a bare infinitive in most languages (1):

- | | | |
|-----|---------------------------------------------------------|---------|
| (1) | a. <i>Gianni ha fatto riparare la macchina a Mario.</i> | Italian |
| | Gianni has made repair-INF the car to Mario | |
| | ‘Gianni made Mario repair the car.’ | |
| | b. <i>Hans lässt Peter das Auto reparieren.</i> | German |
| | Hans lets Peter the car repair-INF | |
| | ‘Hans made Peter repair the car.’ | |

Despite the fact that ACCs have been the target of investigation for more than three decades, their syntactic structure is still a matter of debate. In this paper, we investigate the construction from a comparative perspective, focusing on German and Italian.¹ In doing so,

¹ Due to the limits of this paper, we restrict our discussion of the Romance languages to Italian. French patterns with Italian in a lot of ways, but differs crucially in others. Spanish, or Portuguese ACCs, again, differ
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we elicit hitherto underestimated or unrecognized properties of ACCs, which will be shown to shed light on some of the syntactic issues surrounding a proper analysis of ACCs.

The paper proceeds as follows: in section 2, we outline the similarities and differences between German and Italian ACCs. Based on the similarities, a blueprint for the syntactic structure of ACCs in both languages will be developed. Section 3 zeroes in on the differences elicited in section 2 such as the obligation effect (3.1.), word order (3.2.), and case assignment (3.3.), and we argue that the three phenomena are in fact related. In particular, we show that they all depend on the type of projection heading the infinitival complement: VoiceP in German, ApplP in Italian. We are thus going to adjust our blueprint in order to account for the different properties of ACCs. Section 4 concludes.

2. Italian and German ACCs

2.1. Similarities

ACCs involve two verbal elements (*fare/lassen* 'make', and the embedded infinitive; see (1)). Both predicates are associated with an event argument in the semantic composition of the sentence such that ACCs are essentially bi-eventive. Evidence for this comes from the fact that the addition of event modifiers triggers ambiguity (Italian data are from Guasti 1993:42):

- (2) a. *Adele ha fatto cuocere il maiale con un limone in bocca.*
 Adele has made cook the pork with a lemon in mouth
 (i) Adele had the pork cooked with a lemon in its mouth.
 (ii) Adele had a lemon in her mouth when she had the pork cooked.
 b. *weil er die Ärzte seinen Bruder schnell operieren lässt.*
 because he the doctors his brother quickly operate let
 (i) because he made the doctors operate his brother quickly.
 (ii) because he quickly made the doctors operate his brother.

If adjunction targets the projections that are modified (Alexiadou 1997; Cinque 1999), the two interpretations for the causative sentences in (2) derive from different attachment sides of the modifier: it may either attach to the matrix or the embedded VP, consequently modifying the upper or the lower event respectively. With ACCs being bi-eventive, they implement the prototypical causative scenario, or what Talmy (1976) calls the *Basic Causative Situation*. Causation is thus defined as a relation between two events *e*, *e'*, such that *e* triggers *e'* (how tight the relation between the two events is has been a matter of much dispute; see for example Lewis 1973 for a counterfactual analysis of causation; van de Koot and Neeleman 2012 for arguments that such a relation is in fact too strong). Following common usage, we will call the two events *causing* and *caused event* respectively (note that the former remains obligatorily implicit in ACCs; see Pylkkänen 2002 for discussion), and use *causer* and *causee* to refer to the external arguments of the matrix and the embedded predicate respectively.²

substantially from both Italian and French causatives. The developing complex picture made us focus on Italian and German first, but we believe that the results of our investigation crucially inform studies on Romance-internal variation.

² Note that *causer* in this sense is different from what has generally been taken to constitute the thematic role *causer*. The latter is canonically considered to involve features such as [-human], [-intuitive], [+eventive] (Schäfer 2008), none of which is a necessary feature of the higher external argument in ACCs. Thus, in the prototypical case, *causer* and *causee* in our terminology correspond to the thematic agent of the matrix and the embedded predicate respectively.

A second unitary feature of ACCs (in Italian and German) relates to the morphological realization of the predicate denoting the caused event. The complement of *fare/lassen*, similar to the one of verbs of perception, is a bare, rather than a prepositional infinitive. ACCs and perception verb constructions (PVC) are therefore singled out from other constructions involving infinitival complementation, such as control structures, which by contrast require a prepositional infinitive in Italian and German (3,4c).³

- (3) a. *Gianni ha fatto [(*) riparare la macchina a Mario].* ACC
 Gianni has made (*to) repair-INF the car to Mario
 ‘Gianni made Mario repair the car.’
- b. *Ho visto [Giovanni (*) pronunciare il discorso].* PVC
 have seen Giovanni (*to) deliver-INF the speech
 ‘I saw Giovanni deliver the speech.’
- c. *Questo conduce la gente [(*) PRO concludere quanto segue].* control
 This leads the people *(to) PRO conclude what follows
 ‘This leads people to conclude what follows.’
- (4) a. *Mark ließ [die Schüler die Aufgabe (*zu) lösen].* ACC
 Mark made the students the exercise (*to) solve-INF
 ‘Mark made the students solve the exercise.’
- b. *Ich sah [Mark ein Eis (*zu) essen].* PVC
 I saw Mark an ice-cream (*to) eat-INF
 ‘I saw Mark eat an ice-cream.’
- c. *Mark zwingt Martin [PRO ein Eis *(zu) essen].* control
 Mark forces Martin PRO an ice-cream (to) eat-INF
 ‘Mark forces Martin to eat an ice-cream.’

Despite the similarity of PVC and ACC in terms of their selection of a bare infinitival complement, differences exist with respect to the availability of a finite complement clause. Whereas verbs of perception optionally select a CP complement, *fare/lassen* never do:⁴

- (5) a. *Ho visto [CP che Giovanni usciva].*
 Have seen that Giovanni leave
 ‘I saw that Giovanni was leaving.’
- b. **Ho fatto che Giovanni usciva.*
 Have made that Giovanni leave
 ‘I made that Giovanni was leaving.’

³ The syntactic status of the infinitival marker is unclear and possibly differs in the languages under investigation. Whereas the English infinitival marker *to* is often considered to be a realization of non-finite T, Italian *a* is more likely a complementizer (Burzio 1986). In German, *zu* in infinitival complements is traditionally assumed to belong to the verbal element itself (see Bech 1955, Wurmbrand 2001). For us it is only important that ACCs and PVCs clearly differ from control constructions in lacking such an element.

⁴ This is true at least for the languages under investigation. Other Romance languages such as Spanish, Catalan, and Romanian do allow CP-complementation. However, these languages optionally allow SVO-order in ACCs (Reed 1992 observes the same for certain Canadian French dialects), which arguably leads to bi-clausal behavior (see Guasti 1993). This might suggest a difference in the degree of grammaticalization of the causative predicate among the Romance languages (see Soares da Silva (in press) for such a proposal).

- (6) a. *Ich sah, dass Maria den Raum verlässt.*
 I saw that Mary the room leaves
 ‘I saw that Mary left the room.’
 b. **Ich ließ, dass Maria den Raum verlässt.*
 I let that Mary the room leaves
 ‘I made that Mary leaves the room.’

Thus, the causative predicate in the languages under investigation obligatorily combines with a bare infinitival complement. The fact that no finite complement is ever allowed in ACCs undermines one classical motivation, resting on uniformity considerations coupled with the bi-eventivity of ACCs, for the assumption that ACCs are in fact bi-clausal (as suggested for example in Kayne 1975; Burzio 1986).

A further argument against a bi-clausal analysis of ACCs comes from the fact that typically ACCs exhibit transparency effects that are characteristic of restructuring constructions/monosentential construals (Wurmbrand 2001; Cinque 2004; Reis and Sternefeld 2004). Based on work by Bech 1955, Wurmbrand provides a battery of tests that distinguish restructuring (R) from (reduced) non-restructuring (NR) infinitives. In German, for example, restructuring infinitives do not allow extraposition of the infinitival complement, whereas non-restructuring ones do (7; see also Reis 2001). Furthermore, unlike NR, R allow scrambling of the embedded arguments and subsequent remnant topicalization (8).⁵

- (7) a. *weil Martin (das Buch lesen) muss (*das Buch lesen).* (R)
 because Martin (the book read) must (*the book read)
 ‘because Martin has to read the book.’
 b. *weil Martin *(das Buch zu lesen) verspricht (das Buch zu lesen).* (NR)
 because Martin *(the book to read) promises (the book to read)
 ‘because Martin promises to read the book.’
 c. *weil Martin (Markus das Buch lesen) lässt (*Markus das Buch lesen).* (ACC)
 because Martin (Markus the book read) lets (*Markus the book read)
 ‘because Martin makes Markus read the book.’
- (8) a. *Lesen müssen hat Martin das Buch trotzdem.* (R)
 Read must has Martin the book nonetheless
 ‘Martin has had to read the book nonetheless.’
 b. **Zu lesen versprochen hat Martin das Buch trotzdem.* (NR)
 to read promise has Martin the book nonetheless
 ‘Martin has promises to read the book nonetheless.’
 c. *Lesen lassen hat Martin den Schüler das Buch trotzdem.* (ACC)
 read let has Martin the student the book nonetheless
 ‘Martin has had the student read the book nonetheless.’

⁵ The prototypical test for restructuring, long object movement, cannot be applied to German ACCs, as causative *lassen*, in contrast to Italian *fare* (see (9)), does not passivize. Wurmbrand relates this to the functional status of the causative predicate and the generalization that functional restructuring predicates by their very nature do not passivize. This entails, however, that *fare* must be analyzed as a lexical restructuring predicate, which then clearly calls into question Wurmbrand's contention that restructuring infinitives must be bare VPs. We will have to leave this very interesting issue, as well as possible consequences of the lexical-functional divide of causative predicates for future research.

The c)-examples in (7,8) show that in German ACCs, the infinitival complement patterns with restructuring rather than non-restructuring infinitives. The tests therefore provide support for Bech's original claim that incoherence (i.e. sentential status of the infinitival complement) is only possible if the matrix predicate governs the second status (a *to*-infinitive). If the lower verb surfaces in the first (bare infinitive) or the third status (participle), the construction is obligatorily coherent (mono-sentential) (comp. Reis' 2001 notion of *strong coherence*).

Tests indicating the restructuring status of Italian ACCs are the availability of long passives (9) and clitic climbing (10):

- (9) *Il libro fu fatto leggere a Mario (da Gianni)*
 the book was made read to Mario (by Gianni)
 'The book was made Mario read (by Gianni)'

- (10) a. *Maria la fa riparare a Giovanni.*
 Maria **it**.ACC made repair to Giovanni
 b. **Maria gli ha fatto ripararla.*
 Maria him.DAT has made repair-**it**.ACC
 'Mary made Giovanni repair it.'

In (9), passivization of the matrix predicate *fare* affects the case assignment properties of the embedded predicate, as the embedded object is promoted to matrix subject position.⁶ In a bi-sentential structure, the embedded arguments should remain unaffected by (case-related) processes targeting the upper clause. Clitic climbing in (10) shows that the complement of the causative predicate is transparent for extraction phenomena and does not provide a legitimate landing site for a clitic (if clitics are assumed to head-move and adjoin to an inflectional head; see Roberts 2010 for a different view). In that regard, ACCs contrast essentially with control constructions, where the clitic has to attach to the embedded predicate (11a) and cannot climb into the matrix clause (11b):

- (11) a. *Maria gli ha chiesto di comprarlo.*
 Mary him.DAT has asked to buy-it.ACC
 b. **Maria gli lo ha chiesto di comprare.*
 Mary him.DAT it.ACC has asked to buy
 'Mary asked him to buy it.'

Hence all of the typical tests suggest that ACCs are essentially mono-sentential, i.e. the infinitival complement lacks sentential status (i.e. it must lack at least the CP-layer). With respect to TP and AspP, one observes the general impossibility of temporally modifying the embedded event independently from the matrix event (i.e. the embedded event is temporally dependent on the matrix tense (12a)), as well as the ungrammaticality of auxiliaries in the complement of ACCs (12b from Guasti 1993).⁷

⁶ A well-known puzzle with Romance causatives is the fact that French disallows matrix passivization. Adopting Wurmbrand's ideas, this might point to a difference in syntactic status, with the *fare* being lexical, *faire* semi-functional (comp. footnote 5; see Folli & Harley 2007 for a similar assumption concerning *fare* in FI and FP-causatives; Kayne 2005 for a different explanation). As Guasti (1993) observes, long passive in ACCs was possible at an earlier stage of French, which might support an analysis in terms of grammaticalization.

⁷ Furthermore, it has been observed that embedded negation in causative constructions is also unacceptable (Bordelais 1988; Rowlett 2007), testifying to the lack of any functional projection in the causative complement.

- (12) a. **Der Mann ließ den Handwerker das Bad morgen reparieren.*
 The man let the craftsman the bath tomorrow repair
 ‘The man made the craftsman repair the bath tomorrow.’
 b. **Marco farà aver pulito le toilette al generale.*
 Marco will.make have cleaned the toilets to.the general
 ‘Marco will make the general have cleaned the toilets.’

Assuming a tight correlation between semantic interpretation and syntactic structure, which means that the absence of a particular semantic effect entails the absence of the respective syntactic projection, the observations in (11-12) point to the absence of TP or AspP from the infinitival complement in ACCs.

Note that the ungrammaticality of the examples in (12) can not be reduced to a semantic incompatibility. (13) shows that the control predicate *veranlassen* ‘make’, which is semantically close to (causative) *lassen*, allows for such modification:

- (13) *Der Mann veranlasste den Handwerker, das Bad morgen zu reparieren.*
 The man made the craftsman the bath tomorrow to repair
 ‘The man made the craftsman repair the bath tomorrow.’
 b. *Der Lehrer veranlasst die Schüler, die Arbeit bis Mittwoch abgegeben zu haben.*
 The teacher makes the students the work by Wednesday handed.in to have
 ‘The teacher makes the students to have handed in the work by Wednesday.’

In sum, German and Italian ACCs share a number of morpho-syntactic properties: they are monoclausal bi-eventive (restructuring) constructions that require their infinitival complement to surface as a bare infinitive. Following our discussion above, we assume that the infinitival complements of ACCs in both Italian and German lack all higher functional projections (pace Burzio 1986; Baker 1988, and in line with Guasti 1993; Wurmbrand 2001; Folli and Harley 2007; Enzinger 2010). Against Wurmbrand (2001), however, we assume that restructuring infinitives must not be bare VPs, but may involve the external argument introducing projection VoiceP.⁸ The reason for this is that even though ACCs are considered prototypical restructuring constructions, the presence of the causee (embedded external argument) is incompatible with Wurmbrand’s bare VP approach and requires her to make additional (construction specific) assumptions (see Reis and Sternefeld (2004) for the same point of criticism). If one allows restructuring infinitives to involve VoiceP, the facts fall out straight-forwardly.⁹ We thus arrive at the structure for ACCs in (14) (German involves a head-final

Potential counterexamples, such as (i) from Torrego (2010) would arguably have to be analyzed as constituent negation, therefore not falsifying our assumptions concerning the size of the complement:

(i) El jefe hizo a sus clientes no divulgar la noticia.
 ‘The boss made his clients not spread the news.’

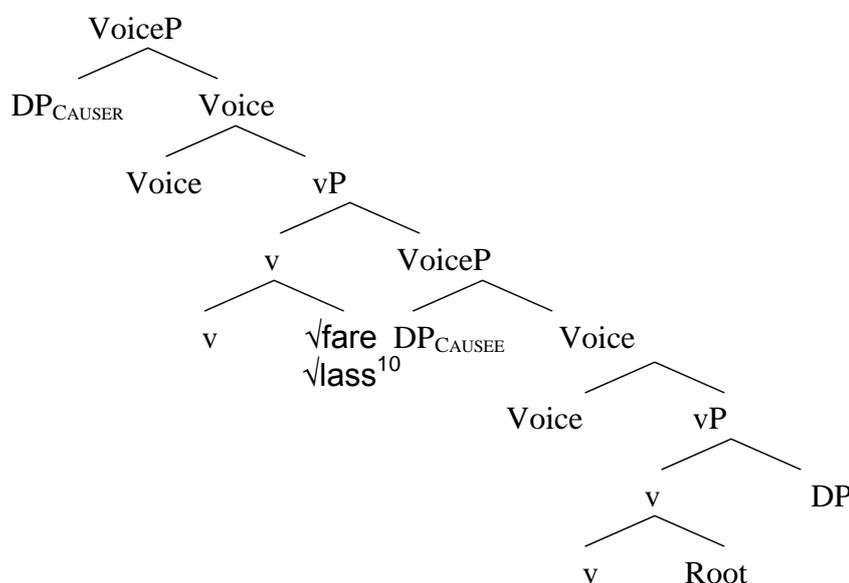
Even if the negation in (i) is not taken to be an instance of constituent negation, it is important to add that in (i), the causee precedes the infinitival verb and the embedded object - an order which has been associated with bi-clausal behavior (see Guasti 1993 for Italian *lasciare*-constructions that optionally allow for embedded SVO).

⁸ Wurmbrand calls this projection vP. Following the terminology in Kratzer (1996), we assume that the external argument is introduced in SpecVoiceP. Assuming a Distributed Morphology type of framework (Halle and Marantz 1993, 1994 and subsequent work), vP introduces features such as eventivity and verbalizes a category-neutral root (as in Marantz 1997). Adjunction of a root to v indicates main verb status, whereas functional predicates are spell-outs of feature-bundles on functional heads (see Folli & Harley 2007).

⁹ Our claim of course does not come without costs: we lose the possibility to straight-forwardly account for long passives, as we predict a case-position to be present in restructuring infinitives. Space requires us to leave

phrase structure which is ignored here for expository reasons, but is taken into account elsewhere):

(14) Working structure for FI



2.2. Differences

In this section, we focus on three differences between German and Italian ACCs: word order, case assignment, and the interpretation of ACCs.

First, the infinitival complement in German ACCs shows S(O)V word order (15), which is the canonical word order found in German embedded clauses. In Italian by contrast, the causative and the infinitival predicate need to be linearly adjacent.¹¹ The causee surfaces in postverbal position, possibly following the embedded object, which leads to a V(O)S-structure (16). The German word order is ungrammatical in Italian (17):¹²

(15) *Er ließ den Maler das Haus streichen.*
 He let the painter the housepaint
 ‘He made the painter paint the house.’

this very important issue unattended, but it seems that ACCs prove to be a valuable domain for the investigation of the properties of restructuring constructions.

¹⁰ We argued above that there might be a difference with respect to the lexical/functional status of the causative predicate. We gloss over this issue in the rest of the paper, treating *fare* and *lassen* as lexical.

¹¹ Linear adjacency is not an absolute requirement, however. Guasti (1993) shows that adverbs may intervene between the causative predicate and the infinitival verb in a V(O)S-structure.

¹² The same holds for continental French. Reed (1992), however, observes that certain Canadian French speakers alternatively allow SV(O)-order in ACCs, where trivially the subject intervenes between the two predicates. As will be shown below, the first point poses no difficulty for, but rather supports our analysis, whereas we take the second one to be peripheral to our discussion. We would like to assume that ACCs that allow this order involve a bigger complement to the causative predicate, just as Guasti (1993) argues for constructions involving verbs of perception, which also surface with SV(O)-order in Italian. Why sometimes both orders are acceptable has to be left for future research.

- (16) *Maria ha fatto riparare la macchina a Giovanni.*
 Mary has made repair-INF the car to Giovanni
 ‘Mary made Giovanni repair the car.’

- (17) **Maria ha fatto Giovanni riparare la macchina.*

Second, Italian (and French) ACCs show a case alternation absent from German. In particular, the external argument of a transitive embedded predicate surfaces with accusative case in German, but with dative in Italian:¹³

- (18) a. *Hans lässt ihn den Bus fahren.*
 Hans lets him.ACC the.ACC bus drive
 ‘Hans makes him drive the bus.’
 b. *Hans lässt ihn springen.*
 Hans lets him.ACC jump
 ‘Hans made him jump.’
- (19) a. *Gianni ha fatto rompere la finestra a Maria.*
 Gianni has made break the window.ACC to Mary.DAT
 ‘Gianni made Maria break the window.’
 b. *Gianni ha fatto parlare Maria.*
 Gianni has made talk Maria.ACC
 ‘Gianni made Maria talk.’

The (b) examples show that with embedded intransitive predicates German and Italian pattern alike: the embedded DP surfaces with accusative case.

Finally, there is a semantic difference between German and Italian ACCs. Since Kayne (1975), it is well-known that in Romance causatives, there exists a tight relation between the causer and the causee argument. The nature of this relation has been treated differently in the literature, most notably, however, under the notion of affectedness (Alsina 1992, Guasti 1993, 1996), or more recently, under the label *obligation* (Folli & Harley 2007 (F&H 2007 henceforth)). F&H assume that in ACCs of the *Faire Infinitive*-type (see Kayne 1975) the causer obliges the causee to realize the embedded event. The adequacy of the notion *obligation* can be seen in contexts where encyclopedic knowledge inhibits an obligation relation between causer and causee, as in (20b):

- (20) a. *Gianni ha fatto riparare la macchina a Mario.*
 Gianni has made repair the car to Mario
 ‘Gianni got Mario to repair the car.’
 b. #*Gianni ha fatto riparare la macchina al meccanico di via Fiume.*
 Gianni has made repair the car to.the mechanic of street Fiume
 ‘Gianni had the mechanic in Fiume St. repair the car.’

¹³ We follow Burzio (1986); Guasti (1993, 1996); Folli & Harley (2007) in taking *a* ‘to’ in (19a) to be a case marker rather than a preposition (but see Kayne 2004, den Dikken 1995, 2006 for different analyses which rest on the claim that this element is, in fact, a preposition).

F&H argue that (20b) is judged pragmatically odd due to the fact that it is a mechanic's job to repair cars, and one typically does not oblige him to carry out his profession. The authors call the difference in acceptability between the examples in (20) the *obligation effect*. Crucially, this effect is absent in German. There is no perceivable contrast between (21a) and (21b):

- (21) a. *Hans hat Peter das Auto reparieren lassen.*
 Hans has Peter the car repair let
 'Hans had Peter repair the car.'
 b. *Hans hat den Mechaniker das Auto reparieren lassen.*
 Hans has the mechanic the car repair let
 'Hans had the mechanic repair the car.'

The table below provides a summary of the similarities and differences between German and Italian ACCs, identified in this and the preceding section.

	Italian	German
bi-eventivity and embedded bare infinitive	yes	yes
transparency effects	yes	yes
word order (embedded)	V(O)S	S(O)V
case on embedded subject of transitive verb	dative	accusative
obligation effect	yes	no

3. Towards an account

3.1. The obligation effect

F&H (2007) claim that the obligation effect is a conceptual effect and make it follow from the particular syntactic structure they assign to analytic causatives. They build on the typology of little *v* developed in Folli & Harley (2005), according to which little *v* comes in different flavors with ensuing consequences both for the type of argument introduced in SpecvP, as well as the c-selectional properties of *v*. The correlation is summarized in (22):

- (22) a. v_{DO} : introduces agent; c-selects NP/SC
 b. v_{CAUS} : introduces agent/causer; c-selects SC

For Italian ACCs, they assume that the causative predicate heads a v_{CAUS} which c-selects a small clause (SC) headed by v_{DO} . As according to (22), v_{DO} introduces only agents, F&H predict that non-intentional causees should be blocked from Italian ACCs. (23) shows that this prediction is correct: even though the predicate can in principle license a causer (23a), only an agent can surface in the corresponding ACC (23b, from F&H 2007).

- (23) a. *Il tecnico / Il programma ha disinfettato il computer.*
 The technician / the program has disinfected the computer
 'The technician / The program disinfected the computer.'
 b. *Gianni ha fatto disinfettare il computer al tecnico / *al programma.*
 Gianni has made disinfect the computer to.the technician / to.the program
 'Gianni made the technician / *the program disinfect the computer.'

For F&H, the animacy restriction on the embedded subject triggers the obligation effect. Agents are intentionally acting entities and the only way to make such an entity carry out some action is by obliging it to do so. Note that F&H's analysis could be taken to suggest that languages lacking the obligation effect should allow for inanimate causees. This is indeed the case in German, which lends credibility to their theory:

- (24) a. *Der Techniker / Das Program hat den Computer (nach Viren) durchsucht.*
 The technician / the program has the computer (for viruses) searched
 'The technician / The program searched the computer for viruses.'
 b. *Hans ließ den Techniker / das Program den Computer (nach Viren) durchsuchen.*
 Hans let the technician / the program the computer (for viruses) search
 'Hans made the technician / the program search the computer for viruses.'
- (25) a. *In ihrem Studio ließ die Filmcrew einen Hurrikan eine Kleinstadt zerstören.*
 In their studio let the movie-crew a hurricane a town destroy
 'In their studio, the movie-crew made a hurricane destroy a town.'
 b. *Der Dauerregen ließ die Zisterne hundert Liter mehr enthalten*
 The constant.rain let the reservoir hundred liters more contain
 'The one-week lasting rain caused the reservoir to contain a hundred liters more.'
 (based on Grewendorf 1983, 147)

Thus, F&H account for the obligation effect by linking it to the syntactic structure of ACCs, namely the presence of an embedded v_{DO} (which would presumably contrast with an embedded v_{CAUS} in German).

Even though F&H's analysis neatly accounts for a number of intriguing properties of Italian ACCs, their account of the obligation effect is empirically inadequate. Taking unergative predicates, which would involve a v_{DO} in F&H's theory, one would expect that embedding these predicates under *fare* should give rise to the obligation effect, contrary to fact. The following examples are judged equally acceptable by Italian native speakers:

- (26) a. *Maria ha fatto cucinare Gianni.*
 Maria has made cook Gianni
 'Maria made Gianni cook.'
 b. *Maria ha fatto cucinare il cuoco.*
 Maria has made cook the chef
 'Maria made the chef cook.'
- (27) a. *Maria ha fatto cantare Gianni.*
 Maria has made sing Gianni
 'Maria made Gianni sing.'
 b. *Maria ha fatto cantare il cantante.*
 Maria has made sing the singer
 'Maria made the singer sing.'

The acceptability of (26b) and (27b) is unexpected under F&H's account of the obligation effect, which suggests that some other factor is responsible for it.¹⁴ We advance the

¹⁴ F&H's account could be saved by assuming that apart from the presence of an embedded v_{DO} , the obligation effect depends on the acceptability of a corresponding FP-construction, in which the relevant relation

hypothesis that (one aspect of) this factor is the case marking on the causee: the obligation effect depends on dative case on DP_{CAUSEE}. Note that this assumption accounts for the absence of the effect in the examples above. We have already mentioned that in Italian ACCs, the case on the embedded subject is sensitive to the valency of the verb. Thus, with the embedded verbs being intransitive in (26, 27), the absence of the obligation effect is expected.

Evidence supporting our proposal comes from the data below: as soon as the internal argument is overtly realized, the obligation effect reemerges:

(26') #*Maria ha fatto cucinare il suo piatto preferito al cuoco.*
 Maria has made cook the her dish favorite to.the chef
 'Maria made the chef cook her favorite dish.'

(27') #*Maria ha fatto cantare la sua canzone preferita al cantante.*
 Maria has made sing the her song favorite to.the singer
 'Maria made the singer sing her favorite song.'

The contrast between (26') and (26b)/(27') and (27b) strongly suggests that the obligation effect is linked to dative case on the causee. We have to leave a definite answer as to why such a correlation should exist for future work, but discuss a potential direction such an explanation could take.¹⁵ Authier and Reed (1991) discuss French dialects in which a clitic corresponding to the embedded external argument variably surfaces as dative or accusative:

(28) a. *Je lui ai fait manger des épinards.*
 I him.DAT have made eat the spinach
 b. *Je l'ai fait manger des épinards.*
 I him.ACC-have made eat the spinach
 'I made him eat the spinach.'

Authier and Reed observe that dative case correlates with an indirect causation reading and a more autonomous embedded subject (where autonomy is taken to express the degree of control an agent has over the event in question), whereas accusative case indicates direct causation and a less autonomous causee. Translating these insights into Italian ACCs entails that the transitive causee is interpreted as being relatively autonomous with respect to the causation involved. At first, this might seem to contradict the general assumptions concerning the relation between causer and causee. Yet, this might be where F&H's conceptual explanation of the obligation effect comes into play again: a relatively autonomous agent can only be made to carry out an event if it is obliged to do so. We admit that this is a very tentative proposal, but we want the reader to keep in mind that, as a conceptual explanation, the strength of the obligation effect depends on how 'strong' the sense of autonomy is with respect to the causee. It seems plausible, then, that there is individual speaker variation in this regard so that for different speakers the obligation effect appears to differ in strength. No treatment of the obligation effect in terms of a particular syntactic structure would easily account for such variability.¹⁶

between causer and causee is absent (Kayne 1975). In this case, the obligation effect would ultimately receive a functionalist explanation, and no reference to flavors of little *v* needs to be made.

¹⁵ We would like to thank Marcel den Dikken who referred us to the relevant literature.

¹⁶ We have been told that the obligation effect is absent in Spanish and Catalan (Anna Pineda, p.c.). This could be the consequence of the fact that in these languages, the causee is always dative marked, independent of

3.2. Word Order

In this section, we provide an account for the differences in word order illustrated in (15)/(16), repeated as (29)/(30) for the sake of convenience:

- (29) *Er ließ den Maler das Haus streichen.*
 He let the painter the housepaint
 ‘He made the painter paint the house.’
- (30) *Maria ha fatto riparare la macchina a Giovanni.*
 Mary has made repair the car to Giovanni
 ‘Mary made Giovanni repair the car.’

In German, the embedded infinitival predicate occurs in sentence final position, preceded by the causee and possibly the embedded object (SOV-order). In Italian, by contrast, the bare infinitive appears close to the matrix predicate and is followed by the embedded object and the causee respectively (VOS-order).

Before accounting for the differences in word order (and, subsequently, in case assignment), we need to clarify some theoretical assumptions we make. First, we assume that the syntactic computation is cyclic in nature, i.e. that the derivation proceeds in phases as in Chomsky (2001), and that CP, a ϕ -complete vP (v*P in Chomsky’s work, active VoiceP in ours), as well as high ApplP (McGinnis 2008, Wood 2011) constitute phases. Second, argument licensing is completely dissociated from (abstract/morphological) Case assignment. This is to say that (formal) licensing of an argument reduces to valuation of uninterpretable ϕ -features ([u ϕ]) on T/v (similar to Pesetsky and Torrego 2001). Third, the [u ϕ]-features necessary for licensing are not generated on the licensing head itself, but on the immediately dominating phase heads C/Voice (Feature Inheritance à la Richards 2007, Chomsky 2008). Equipped with this, we will now approach the structure of German ACCs.

Following Reis (1973) and Grewendorf (1983), we argue that German ACCs are in principle AcI-constructions. One argument in favor of this view comes from the possibility of embedding weather verbs under *lassen* (31), which suggests that the higher accusative marked DP is not an argument of the causative predicate (see Huber 1980 for further arguments against a control analysis of German ACCs), but of the embedded predicate exclusively.

- (31) *Wenn ich das Wetter ändern könnte, würde ich es schneien lassen.*
 If I the weather change could would I it snow let
 ‘If I could change the weather, I would make it snow.’

Treating German ACCs as AcI-like constructions, we will account for the word order facts as follows: since the restructuring infinitive is an active VoiceP, Voice is inserted bearing [u ϕ] and hands them down to the categorizing head v via Feature Inheritance (FI):

- (32) [_{VoiceP} DP_{CAUSEE} [_{vP} DP_{THEME} [i ϕ] v[u ϕ :]] Voice]
 FI

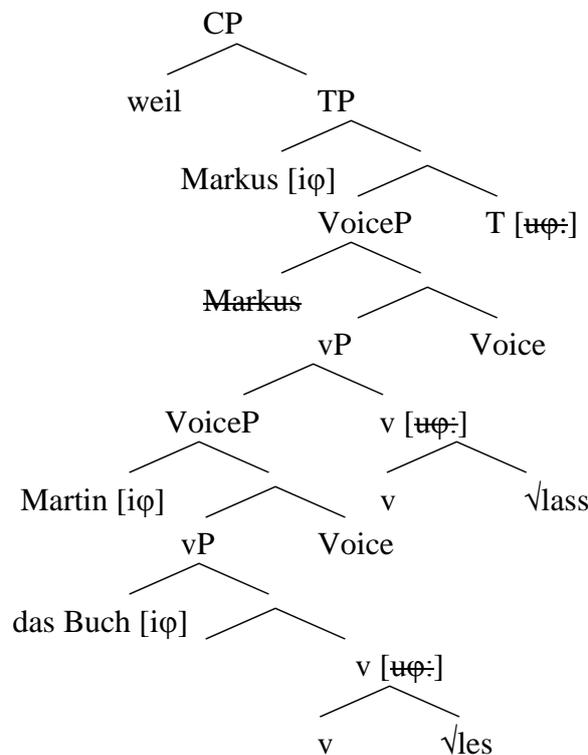
the transitivity of the embedded predicate. One could speculate that the absence of a change in case-marking effects uniformity in the interpretation of the causee.

After FI, $[u\phi]$ on v is valued via Agree with $[i\phi]$ of DP_{THEME} , and the latter is thereby formally licensed. Next, matrix vP is added, and upon the merger of active VoiceP on top, matrix v inherits $[u\phi]$ from Voice.

- (33) $[_{VoiceP} DP_{CAUSER} [_{vP} [_{VoiceP} DP_{CAUSEE} [i\phi] Voice] v [u\phi:] Voice]$
└──────────┘
FI

DP_{CAUSEE} values $[u\phi]$ on matrix v via Agree and is thus licensed. Ultimately, merging TP and CP, T inherits $[u\phi]$ from C, which are valued by DP_{CAUSER} via Agree. Due to the EPP-subfeature (see Pesetsky and Torrego 2001), DP_{CAUSER} moves to SpecTP.¹⁷ The resulting structure (employing an embedded sentence so as to avoid complications due to the V-2 requirement) is exemplified in (34; verb movement omitted):

- (34) weil Markus Martin das Buch lesen lässt.



Turning to Italian causative constructions, the central question to be answered is why does the causee linearly follow both the embedded predicate and the embedded object? An answer given by Guasti in her work, picked up by F&H (2007) is that the specifier of VoiceP projects to the right in Italian. Since in non-restructuring infinitives, higher projections are present that provide a position for the subject to move into, these infinitives surface with the canonical SVO order. As the infinitival complement involved in ACCs lacks such higher projections,

¹⁷ It is unclear whether German T has such a subfeature, as it is well-known that the structural subject may (and sometimes must; see Wurmbrand 2006) stay in VP-internal position. As nothing in our argument hinges on this fact, we will ignore this issue.

the causee has to stay in its in-situ position where it follows both the infinitival predicate and, if present, its object.

There are a number of problems with a right-specifier approach, however. Let us advance two empirical problems such a proposal has to face (see Torrego 2010 for some more arguments). Following the traditional assumption of Sportiche (1988) that floating quantifiers indicate the syntactic positions that an argument moves through, including its base position, a right-specifier analysis would predict that in ACCs a quantifier associated with the matrix subject should be able to occur in sentence-final position, contrary to fact:¹⁸

- (35) *I professori facevano commentare il libro (*tutti) a Maria (*tutti).*
 The professors made comment the book (all) to Maria all
 ‘All the professors made Maria comment on the book.’ (Guasti 1993: 163)

In order to explain (35), a right-specifier approach would have to assume that in the first step of movement, the subject has to pied-pipe its quantifier, potentially stranding it only afterwards. Alternatively, one would have to postulate a difference between embedded and matrix VoiceP - none of the two solutions being particularly elegant.

A second problem relates to the original motivation for assuming a right-specifier analysis of the external argument introducing projection in Italian. As the subject of a small clause follows, rather than precedes its predicate (36a) (in contrast to German (36b)), F&H (2007) conclude that the specifier in small-clause-like structures projects to the right, and they thus treat vP accordingly.

- (36) a. *Gianni ha fatto felice Maria.*
 Gianni has made happy Maria
 ‘Gianni made Maria happy.’
 b. *Hans machte Maria glücklich.*
 Hans made Maria happy
 ‘Hans made Maria happy.’

It can be shown, however, that the order of (36) is not the canonical order of Italian small-clause-like structures, but crucially depends on structural properties of the causative construction. Consider (37) from Burzio (1986):

- (37) *?La sua espressione fa sembrare Giovanni ammalato.*
 The his expression makes seem Giovanni sick
 ‘His expression makes Gianni seem sick.’

In (37), the subject of the small clause embedded under the raising verb *sembrare* ‘seem’ precedes its predicate. The contrast between (36a) and (37) suggests that the ‘subject-last’ property is connected to a structure in which the causative predicate immediately embeds the small clause. As soon as further (verbal) material intervenes, the small-clause subject needs to precede its predicate. Note that in (37) it is unlikely that the small clause subject has moved to a higher specifier preceding the adjective since *sembrare* ‘seem’, being a raising verb, should not make available such a position.

¹⁸ Not everyone agrees that floating quantifiers indicate movement positions. If floating quantifiers were considered adjuncts to the verbal domain, (35) would no longer be an argument against a right specifier analysis.

Having rejected a right-specifier approach to the problem posed by the subject-predicate order in Italian ACCs, we need a different account for why the infinitival predicate and potential objects precede the causee in Italian, but not in German. Such an explanation is discussed in the next section.

3.2.2. An embedded ApplP

Following Ippolito (2000), we propose that Italian FI causatives embed a high ApplP rather than a VoiceP (see also Torrego 2010 for Spanish, and Kim 2012 for English *have*-causatives). We show that ultimately all the observed differences follow from this.¹⁹

Evidence for the postulation of an embedded high ApplP comes from the following difference between German and Italian: German ACCs allow the addition of applied arguments introduced by an embedded high ApplP (38a), Italian ones do not (38b). If the stacking of identical ApplPs is blocked, (38b) is ruled out based on the fact that both the causee and the benefactive are introduced by a high ApplP. In German, by contrast, nothing blocks the addition of a high applied argument as the causee is introduced in SpecVoiceP.

- (38) a. *Mark ließ Martin seinem Nachbarn den Rasen mähen.* FI+ApplP_{High}
 Mark let Martin his neighbor the grass cut
 b. **Marco ha fatto tagliare l'erba a Martin al suo vicino.* FI+ApplP_{High}
 Marco has made cut the grass to Martin to his neighbor
 'Mark made Martin cut the grass for his neighbor.'

Note that the contrast in (38) could receive a different explanation. Richards (2010) assumes that two phrases within the same phase domain need to be *distinct* from each other in order to be linearizable. Richards proposes the following generalization:

- (39) *Distinctness*
 If a linearization statement <a,a> is generated, the derivation crashes.

(39) would, for example, account for the ungrammaticality of cases of stylistic inversion in French such as (40):²⁰

- (40) **Je me demande quand acheteront les consommateurs les pommes*
 I me wonder when will-buy the consumers-NOM the apples-ACC

(40) shows that if the infinitival complement contains a direct object, the subject must not stay in vP-internal position. Assuming that linearization cannot make reference to phonological properties of lexical elements since these are inserted late, the derivation of (40) generates a linearization statement <DP, DP>, which is self-contradictory, and the derivation crashes. (40b) could receive the same explanation only under the assumption that the causee and the

¹⁹ Causative constructions involving an infinitival complement headed by an ApplP is nothing unheard of. Kim (2012) shows that Kinyarwanda, a Bantu language, uses overt applicative morphology in their causatives to introduce the causee.

²⁰ See Alexiadou and Anagnostopoulou (2001, 2007) for a different account of the facts based on the assumption that by Spell-out, vP can contain only one argument with a structural Case feature (the subject-in-situ-generalization). Alexiadou (2011) provides a comparison of the two approaches.

benefactive are not separated by a phase boundary (but see McGinnis 2008) and thus violate distinctness. Plausibility is added to such an explanation of the ungrammaticality of (38b) by the fact that the addition of a low applicative to Italian ACCs is equally ungrammatical:

- (41) **Marco ha fatto dare un libro a Maria a Gianni.* FI+ApplP_{low}
 Marco has made give a book to Maria to Gianni

Thus, the relevant data could be accounted for by making reference to the OCP/distinctness, instead of complicating the syntax by introducing an ApplP into ACCs. That distinctness ultimately fails to explain the situation in Italian causative constructions, however, can be seen by first looking at cases of stylistic inversion in French that do not violate (39):

- (42) a. *Que crois-tu que manquent un grand nombre d'étudiants ?*
 What believe-you that be-absent-from a great number of students
 'What do you believe that a great number of students is missing?'
 b. *Tes cours, a quelle occasion les ont manques un grand*
 your courses at which occasion they been absent-from a great
nombre d'étudiants ?
 Number of students
 'Your courses when have students missed them?'

Wh-movement (42a), as well as cliticization (42b) of the embedded object save French SI-constructions, as is expected under distinctness: movement of one DP out of the critical phase-domain precludes the generation of a self-contradictory linearization statement. Consider now what happens if one of the dative marked DPs from examples (38b) and (41) are cliticized:

- (43) a. *Marco gli ha fatto dare un libro a Maria.* FI+ApplP_{low}
 Marco him.Dat has made give a book to Maria
 'Marco made Gianni/him give a book to Mary.'
 b. **Marco gli ha fatto tagliare l'erba al suo vicino.* FI+ApplP_{high}
 Marco him.Dat has made cut the grass to his neighbor
 'Marco made him cut the grass for his neighbor.'

If a low applicative is embedded, cliticization (and subsequent clitic climbing) of the causee is fully acceptable, whereas with an embedded high applicative, cliticization of the causee is still highly deviant. Distinctness cannot explain the contrast between (43a,b) as both are expected to be grammatical. Under our combined assumptions that the causee is base-generated in the specifier of an ApplP, and the stacking of two high ApplPs is unfeasible, however, the above observations follow: the addition of a high applicative to the infinitival complement in Italian ACCs is plainly impossible.

Further cross-linguistic differences fall out from the proposed structure. Recall that German and Italian FI causatives differ with respect to the animacy restriction on the causee ((23b) vs. (24b), repeated here as (44a,b) respectively):

- (44) a. **Gianni ha fatto disinfettare il computer al programma.*
 Gianni has made disinfect the computer to.the program
 'Gianni made the program disinfect the computer.'
 b. *Hans ließ das Program den Computer (nach Viren) durchsuchen.*

Hans let the program the computer (for viruses) search
 ‘Hans made the program search the computer for viruses.’

Since ApplPs can only introduce animate DPs (see Pylkkänen 2002), whereas VoiceP also introduces causers (i.e. AAS 2006), the contrast in (44) is expected.

As a consequence, we assume that even though the working structure from (16) can be retained for German, it has to be adjusted in order to account for the properties of Italian ACCs. The resulting structure is given in the (abbreviated) bracketed format in (46):

(45) *Structure of Italian FI*

[TP [VoiceP DP_{CAUSER} [vP v-fare/faire [AppIP DP_{CAUSEE} [vP v-Root DP]]]]]

Having adjusted the structure of Italian ACCs, the following section shows how the word order follows from this adjustment.

3.2.3 Deriving the word order of Italian ACCs

In the previous section, we have argued that one central difference between German and Italian ACCs is that German *lassen* embeds a VoiceP, whereas Italian *fare* embeds an ApplP. The null hypothesis, then, is that differences in word order follow from differences between VoiceP and ApplP.

Following Kratzer’s Voice Hypothesis (Kratzer 1996), we assume that the external argument is, in fact, not a real argument of the verb, but is introduced by a separate (light verb) projection dominating vP/VP: VoiceP. Semantically, VoiceP introduces an event variable and an individual variable. The former is identified with the event variable of little v via Event Identification. This ultimately associates the DP in SpecVoiceP with the event denoted by the vP. Pylkkänen (2002) assumes that (high) applied arguments are introduced in a similar manner. The semantics for the two projections are given in (46):

- (46) a. *Semantics of Voice* (Kratzer 1996)
 $\lambda x \lambda e$ [Agent (x)(e)]
 b. *Semantics of Appl_{high}* (Pylkkänen 2002)
 $\lambda x \lambda e$ [APPL (x)(e)]

Both heads combine with the vP/VP via Event Identification.

Despite these similarities, there is one crucial difference between VoiceP and ApplP: Voice cannot license the argument it introduces, which therefore has to Agree in ϕ -features with T (see above). There is no such requirement for the arguments introduced by ApplP: unlike Voice, (high) applicative heads can license the arguments they introduce. In other words, whereas a (high) applicative head licenses upwards, Voice licenses downwards. In terms of Feature Inheritance, then, this means that in the absence of Voice, v never receives the uninterpretable features which are required for the formal licensing of the internal argument. Being unlicensed in its base-position, the internal argument has to move in order to get licensed elsewhere. Additionally, we assume that the embedded verb moves out of the infinitival complement, as well (see Guasti 1993, 2007). Two potential scenarios present themselves to account for the different movements: either the internal argument and the infinitival verb move independently, with the latter head-adjointing to the causative predicate

(as in Guasti's work), and the former moving into matrix SpecvP; or the embedded vP moves as a whole. Even though both approaches derive the required word order (as both the infinitival verb and the embedded internal argument move across the embedded subject), we are going to argue in favor of the second proposal. To put it differently, similar to Burzio 1986, we propose that in Italian ACCs, the whole embedded vP moves across the embedded subject to matrix SpecvP (see Kayne 1975, 2005; Roberts 2010 for similar ideas but different implementation), resulting in (47) (movement of v-√fare to Voice (to T) omitted):

(47) [_{VoiceP} DP_{CAUSER} [_{vP} [_{vP} v-√ DP]_i v-√fare [_{AppIP} DP_{CAUSEE} t_i]]]

Evidence in favor of vP-movement comes from the following three observations: first, the fact that non-passivizable verb-object idioms retain their idiomatic meaning in Faire Infinitive-causatives suggests that the v-DP complex is never split up, as the independent-movement-approach would require. (48) is grammatical under the idiomatic reading.

(48) *Maria ha fatto mangiare la polvere agli avversari.*
 Maria has made eat the dust to.the opponents
 'Maria made her opponents bite the dust / lose'

Second, under the independent-movement approach, the embedded internal argument would move into a position from which it c-commands the causee. This should give rise to a bound variable reading in (49), contrary to fact (one would have to assume that the moved DP obligatorily reconstructs at LF, but since the movement involved is A-movement, and A-moved elements typically do not reconstruct, (49) poses a severe problem for the independent-movement approach). With vP-movement, by contrast, the object DP is contained in a moved phrase (smuggled around the causee as in Collins (2005) account of passives), such that it never c-commands the embedded external argument and the absence of a bound variable reading is expected:

(49) *Il responsabile_i delle risorse humane ha fatto punire ogni dipendente_j al suo_{i/*j} capo.*
 The manager_i of.the resources humane has made punish every employee_j to his_{i/*j} boss.
 'The Human Resources manager made his boss punish every employee'

Third, Ippolito (2000) notes that head-adjunction of the infinitival verb to the matrix, causative predicate suggests (similar to all approaches that posit a comparable instance of complex predicate formation) that the causative verb and the infinitive should behave as a constituent/unit.²¹ That this is not the case has been discussed by Guasti (1993), who notes that additional material can appear between the two verbal elements:²²

(50) *Arturo ha fatto ancora una volta riparare la macchina a Mario.*

²¹ Rizzi (1978) explicitly claims that complex predicate formation is a characteristic property of restructuring constructions, which entails that the causative predicate and the infinitive form a constituent to the exclusion of the embedded object. Cinque (1999, 2004), in contrast, argues that the infinitive and the embedded object form a constituent even in the context of transparency effects. In that regard, our proposal is more in line with Cinque (though crucially not in its details).

²² Which leads her to propose that the causative predicate excorporates from the causative-infinitive complex.

Arturo has made again one time repair the car to Mario
 ‘Arturo had Mario repair the car again.’ (F&H 2007)

(50) shows that *fare* and the infinitive behave as distinct constituents, with enough structure in between for an adverb to adjoin to. The vP-movement approach readily accounts for these facts: under the assumption that the causative predicate moves up to T, and event modifiers adjoin to vP, (50) follows directly. In fact, taking a closer look at adverb placement not only provides negative evidence against the independent-movement analysis, but also positive evidence in favor of a vP-movement approach. Consider (51):

(51) *Gianni ha fatto (velocemente) riparare la macchina (*velocemente) a Mario*
 Gianni has made (fast) repair the car (*fast) to Mario
 (*velocemente*).
 (fast)
 ‘Gianni has made Mario repair the car fast.’

Both the higher and the lower copy of the manner modifier may be interpreted as modifying the caused event exclusively. The acceptability of the high and the low position, as well as the unacceptability of the intermediate one fall out from a vP-movement approach to Italian ACCs. In particular, the higher copy results from movement of the vP-constituent, pied-piping the vP-adjunct, whereas the lower copy is a consequence of stranding the adjunct.

Having indicated the advantages of a verb-projection raising analysis, let us briefly comment on one complication such an account yields. Remember that the original trigger for movement in Italian ACCs was argued to be the inability of the infinitival predicate to formally license the internal argument due to its lack of [u ϕ]-features. vP-movement to matrix SpecvP should be movement into a position where the internal argument of the embedded predicate can be licensed. Note that matrix SpecvP is such a position, since, being dominated by an (active) VoiceP, matrix v receives the features relevant for licensing. But this licensing of the embedded object by matrix v can only happen indirectly: matrix little v must be able to probe into the phrase occupying its specifier. The resulting Agree-relation will not be one of c-command (see the discussion on scope-ambiguities above). We suggest that an Agree-relation between the embedded DP and matrix v can still be established due to the fact that the projection in SpecvP is of the same type, being a vP itself.²³ (52) illustrates:

(52) [_{VoiceP} DP_{CAUSER} Voice [_{vP} [_{vP} ... DP[i ϕ]...] _i v[u ϕ]- $\sqrt{\text{fare}}$ [_{AppIP} ... t_i]]]
 Agree/Licensing

The claim that the embedded internal argument is licensed by the matrix, rather than the embedded little v is supported by one curious fact about Italian FI-causatives. As is well-known (Guasti 1993, 2007; F&H 2007) passivization of causative *fare* leads to promotion of the embedded object DP, rather than the causee:

(53) *La macchina è stata fatta riparare a Gianni da Maria.*
 The car is been made repair to Gianni by Maria

²³ Alternatively, one could propose that due to the fact that the phrase in the specifier is of the same category as the phrase that contains it, the uninterpretable features are passed down from Voice to the head of the phrase in the specifier. This would enable canonical licensing via c-command.

‘The car was made to be repaired to Gianni by Maria.’ (Guasti 2007:148)

If embedded little *v* were able to license the embedded object (as in F&H 2007), it is unexpected that matrix passivization should affect the licensing capabilities of the embedded predicate.²⁴ Yet, (53) follows directly from our analysis of FI-causatives. The embedded object is (indirectly) licensed by matrix little *v*.²⁵ As soon as matrix little *v* is embedded under a passive VoiceP, which, by assumption, lacks the [u ϕ]-features relevant for licensing, it cannot establish an Agree relation with the embedded object and the latter moves on to SpecTP, where it values [u ϕ] on T (inherited from phase head C).

In this section, we have shown that the word order differences between German and Italian FI-causatives can be reduced to one independently motivated difference in the syntactic structure: the German causative verb *lassen* embeds a VoiceP, whereas Italian *fare* embeds a (high) ApplP. In the following section, we will show that the observed case-differences also follow from the different projection heading the infinitival complement.

3.3. Case

The main task of this section is to give an explanation of why the causee in Italian ACCs is marked dative or accusative, depending on the transitivity of the embedded predicate, whereas it uniformly receives accusative case in German.

Before we approach that question, we need to clarify our assumptions about case. We will follow Marantz (1991), Harley (1995), McFadden (2004), and Schäfer (2009) in assuming that there is no such thing as Case-licensing. In other words, there is no such thing as abstract Case. Case is rather a post-syntactic phenomenon, being determined at PF in a dependent case type of manner. With respect to the specific implementation, we propose a phase-based approach to dependent case (see Wood 2011 for such a version of the dependent case approach in the context of Icelandic periphrastic causatives): if two DPs eligible for structural case (i.e. neither one is specified for inherent case) are within the same case domain, and DP_{β} c-commands DP_{α} , DP_{α} receives dependent case. A case-domain will be defined as follows:

(54) Case-domain

A case-domain contains two phase domains. α and β are in the same case-domain iff β is in the domain of a phase head π , and there is at most one phase head π' , such that π asymmetrically c-commands π' and α is contained in the domain of π' .

Consider how this works for a simple sentence (55a) with the (simplified) structure in (55b):

²⁴ F&H are well aware of this fact and propose that (53) is not a passivization of a Faire Infinitive-causative, but of the corresponding Faire Par-causative (in which the embedded object is indeed licensed by matrix little *v*). *A Gianni* in (53) is analyzed as a benefactive added to the basic FP structure. Yet, the claim that only FP but not FI can passivize is empirically false. It is generally agreed upon (Burzio 1986, Guasti 2007, F&H 2007) that embedded unergatives can only be instances of FI. F&H thus expect matrix passivization to be incompatible with embedded unergatives. Even though it seems that some ill-understood restrictions constrain the availability of such passives, they do exist. The sentences in (i) are considered completely grammatical by native speakers:

(i) *Mario è stato fatto parlare / correre / telefonare al suo avvocato.*

Mario is been made talk / run / telephone with his lawyer

We take (i) to show that FI-causatives do allow matrix passivization, which leads to the already described problem to account for (53) under a F&H-type of analysis

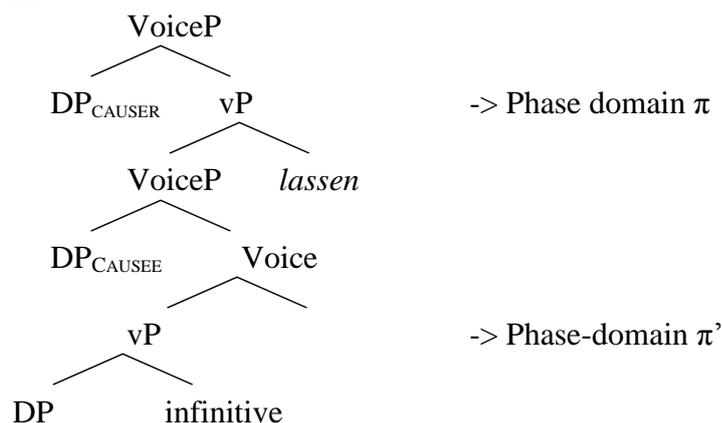
²⁵ We thus explain cases where the sole argument of intransitives is promoted under matrix passivization (see examples in (i) in footnote 22), as in these cases, too, the embedded DP in the active is licensed by matrix *v*.

- (55) a. *John hates Mary.*
 b. [TP John [VoiceP John [vP hates Mary]]]

Following Chomsky (2001), active VoiceP (v*P) is considered a phase, and as a consequence, vP is a phase domain. But the case on DP_{Mary} cannot yet be determined, as its case domain is not complete. Only after the merger of the next highest phase head is its case domain completed. Note that the next highest phase contains DP_{John}, so that the case domain of DP_{Mary} contains two DPs, neither of them being marked for inherent case. DP_{John} c-commands DP_{Mary}, so that the latter surfaces with dependent accusative case. As the case-domain of DP_{John} ultimately contains only one DP (i.e. it is completed by the completion of the whole derivation), it surfaces with nominative case.²⁶

Let us now see how this implementation of the dependent case approach accounts for the case facts in German and Italian ACCs. Recall our claim that German ACCs uniformly embed a VoiceP, which is to say that they are phase-selecting in Pytkänen's terminology (Pytkänen 2002). The relevant part of their structure is given in (56):

- (56) German FI



Under the assumption that in German, the embedded vP does not move into the matrix clause²⁷, the case domain of the embedded object contains the phase domains π and π' . By definition, then, the embedded object is c-commanded by a DP within its case-domain, which triggers accusative case on the embedded object. As the case-domain of the c-commanding DP (DP_{CAUSEE}) is incomplete (at that point, it only contains one phase-domain: π), its case

²⁶ Note that the case domain of the higher DP is incomplete: it contains only one phase-domain. We argue above that since the higher DP is the only DP in its case domain, it surfaces with nominative case. The question arises why it is not possible that after completion of the first phase, the case domain of the object DP is considered incomplete as well, with the result that the object DP surfaces with nominative. Presumably, case domains need to be completed where possible. This would make the necessary distinction between the incomplete phase domain of the lower and the one of the higher DP. The one can be completed, the other cannot.

²⁷ This is not an uncontroversial claim (Martin Salzmann, p.c.). Certain scope facts in Swiss German indicate that verb-projection raising takes place in ACCs of the German type (see Salzmann 2011). Under our approach, we would predict that the case situation in these dialects should be identical to the one of Italian causatives, contrary to fact. Several explanations come to mind that could account for this. It could be, for example, that there is a difference between movement due to the need for licensing (as in Italian) and movement of the Swiss German type, which is not thus motivated. Implementing this requires keeping track of the functional heads with which an argument established an agree relation (as in Harley 1995): the argument that did not value the ϕ -features of T or v, but is in the same case domain with arguments that did, receives the second dependent case.

value can not yet be fixed. The case domain of DP_{CAUSEE} is complete after the completion of the next highest phase, which arguably contains the c-commanding DP_{CAUSER} . This leads to accusative case on DP_{CAUSEE} . Eventually, DP_{CAUSER} surfaces with nominative case because its case domain remains incomplete. We thus arrive at the case-pattern of German ACCs.

Turning to Italian, one question that has to be answered prior to the application of the specific dependent case approach proposed above is whether dative case on the causee is structural or inherent. With F&H (2007), we defend that it is structural. Evidence comes from verbs such as *rispondere* ‘respond’ which already assign inherent dative to the object DP.

- (57) *Gli alunni hanno risposto alla lettera.*
 The.NOM pupils have responded the.DAT letter
 ‘The pupils answered the letter.’

Under *fare*, the external argument of these predicates surfaces with accusative:

- (58) a. *La maestro ha fatto rispondere gli alunni alla lettera.*
 The.NOM teacher has made respond the.ACC pupils the.DAT letter
 b. **La maestro ha fatto rispondere agli alunni alla lettera.*
 The.NOM teacher has made respond the.DAT pupils the.DAT letter
 ‘The teacher made the pupils answer the letter.’

(58) clearly shows that the case on the causee is dependent on both the transitivity of the embedded predicate, as well as on the type of case on the internal argument. If the latter is inherent, the causee surfaces with accusative case. This is problematic for an approach assuming dative case on the causee to be inherent, but falls out from a dependent case approach: the inherently case marked DP will not count for the calculation of dependent case so that there are only two DPs in the case domain of DP_{CAUSEE} , leading to accusative case.²⁸

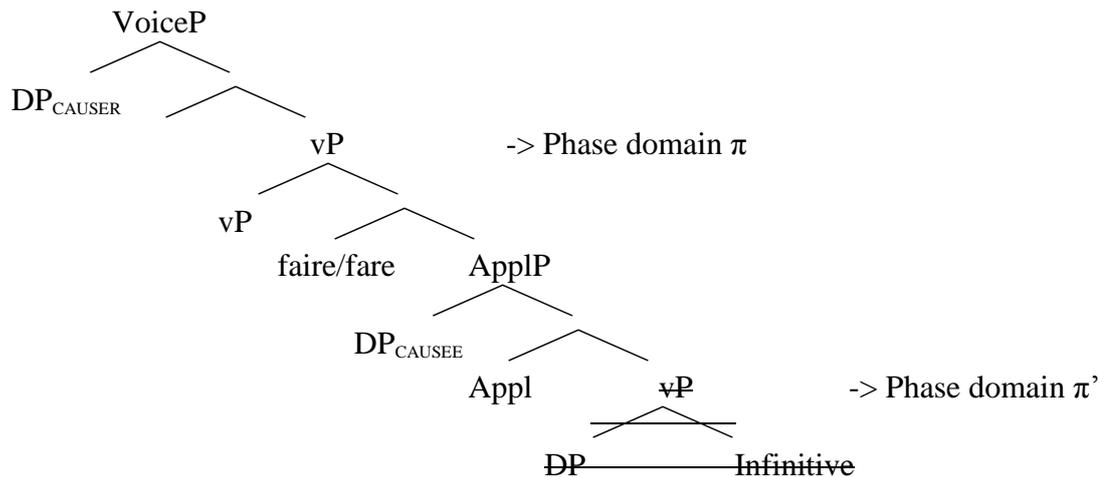
Having determined that the dative case on the causee is structural, let us now see how a dependent case approach could capture the facts. So far we have considered cases where one case domain contains two DPs and we have claimed that the lower DP receives dependent accusative. We will now show that in Italian ACCs the case domain of the structurally lowest argument (the causee) actually contains three DPs eligible for structural case. In order to capture such a situation, we follow Harley (1995), F&H (2007) in assuming the existence of a second dependent case. We will differ from their implementation in arguing that it is the lowest argument that receives this second dependent case (see Rosen 1990):

²⁸ One might wonder why the causee precedes the embedded object in (58a) if the predicate was really transitive. So far, we have seen that with embedded transitives, the object precedes the causee, and we have accounted for this via verb-projection raising. Interestingly, the word order in (58a) provides further support for a vP-movement analysis, rather than calling it into doubt. Kayne (1975) notes that direct objects are pied-piped by verb movement, whereas indirect objects are stranded. This means that *alla lettera* in (58a) linearly follows the causee because as an indirect object, it has been stranded by vP-movement. Apart from being direct evidence for our approach to Italian ACCs, (58a) provides a serious difficulty for F&H’s (2007) analysis. As they assume that the causee is merged into the right-handed-specifier of the embedded VoiceP, they predict that any lower argument should linearly precede it. The only way to account for (58) in their system is to assume that the causee moves into some (higher) position in the matrix clause, which raises the question why the causee should be allowed to move in a structure such as (58a), but not in canonical instances of embedded transitives.

- (59) [Case domain DP_i DP_j DP_k]
 Nom Acc Dat

Recall that for Italian ACCs, we proposed that they embed a high ApplP. In line with Wood (2011) and McGinnis (2008), we assume that high ApplP is a phase. Consider now the relevant structure of Italian FI-causatives:

- (60) Italian FI



Due to vP-movement, phase domain π' is empty at PF. The first phase domain that contains material is π (= the matrix vP). This domain contains DP_{CAUSEE} and the embedded object. For neither one of the two can the case value be determined, as their case domain is incomplete. After the completion of the next highest phase, their case domain will be completed, and will in addition contain a third DP (DP_{CAUSER}), thus instantiating the situation in (59).²⁹ Taking (59) as a template (as in Rosen 1990), DP_{CAUSER} will surface with nominative, the embedded object (which due to vP-movement precedes the causee) will receive accusative, and DP_{CAUSEE} surfaces with the second dependent case dative.

4. Conclusion

The AACs in the languages under investigation proved to be similar in their general syntactic structure: in German, as well as in Italian the causative predicate is phase-selecting in Pylkkänen's terminology (Pylkkänen 2002). As a consequence, ACCs in these languages uniformly show transparency effects which show that these constructions, even though bi-eventive, have to be considered mono-clausal. The differences between the languages, such as the obligation effect on the one hand, word order, and case marking on the other, were shown to follow from case properties of the causee, and different types of projections that head the embedded clause respectively. With respect to the latter, we proposed that in German *lassen* embeds a VoiceP, whereas in Italian *fare* embeds an ApplP.

It was shown that a comparative perspective provides insights into the syntactic structure of ACCs. Much more needs to be done, however. A closer look has to be taken at these

²⁹ The resulting structure would still be compatible with Richards' analysis of ACCs as being subject to the OCP – the two DPs in question (causee and embedded object) are in one phase domain and are thus required to be sufficiently distinct (Richards 2010).

constructions in Italian and French, which, despite a lot of similarities, show some differences, as well (see Kayne 1975, Burzio 1986). These differences should be reconsidered against the results of this paper. It is certainly the case that adjustments to the structures assumed in this paper have to be made. If, however, the structures we proposed for ACCs in the respective languages can serve as 'boundary conditions' on potential variations within a language family, the comparative approach proved to be valuable.

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Cinzia Campanini/Marcel Pitteroff
University of Stuttgart
cinzia/marcel@ifla.uni-stuttgart.de

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Echo Questions and *Wh*-Movement: a Case of Russian

Ekaterina Chernova

It is a familiar fact that crosslinguistically *wh*- Echo Questions present considerable challenges to traditional theories of syntax of non-echo *wh*-interrogatives, since they systematically appear to contradict general claims about question formation such as the obligatoriness of *wh*-movement. This paper presents some novel facts concerning the syntax of Russian ‘request-for-repetition’ Echo Questions in contexts of multiple *wh*-elements (one of which is echo-introduced and the rest proceed from the previous utterance) and explores a possible way to account for their key syntactic features in terms of a double-CP structure (*cf.* Sobin 2010).

1. Introduction

It is a familiar fact that crosslinguistically Echo Questions (henceforth EQs) are usually considered as a counterpoint to the traditional assumptions about the syntax of non-echo *wh*-interrogatives due to the fact that, as it has been claimed by Culicover (1976:73), their ‘relative unrestrictedness [...] makes it unprofitable to attempt to integrate them into the analysis of the more usual types of questions’. In fact, *prima facie* one could get an impression that ‘the grammatical rules of the language should not generate them’, as noted by Cooper (1983:149). It seems that EQs constantly violate the general rules of question formation such as *wh*-movement and the consequential investment of subject-object word order, as shown in the English example (1a), or they exhibit apparent Superiority violations when containing more than one *wh*-element, as in (1b):

- (1) a. Did Mary have tea with *who*? (Sobin 2010: 132)
b. What did *who* drink at Mary’s party?

Probably because of their atypical behaviour, EQs are very little researched and the few existing results still need to be refined. In particular, the antecedents of syntactic analysis of such questions do not abound and EQs are usually treated as a non-syntactic phenomenon (see Culicover 1976; Cooper 1983; Radford 1988, among others), but a purely pragmatic one (see Blakemore 1994; Noh 1998; Iwata 2003, among others). Some well-known syntactic analyses of EQs are Wachovicz (1974); Bošković (2002) and Radkevich (2008) for Slavic languages, Escandell (2002) for Spanish and Sobin (2010) for English.

This paper is especially concerned with ‘request-for-repetition’ *wh*- EQs in Russian, a multiple *wh*-fronting (henceforth MWF) language, contrary to English, as section 2 shows.

Here I uphold the idea that the syntactic properties of *wh*-EQs are less contrary to those of non-echo *wh*-interrogatives than they could appear. Therefore, the analysis which I tentatively offer here is oriented along general lines of arguments of Richards (2001) and Sobin (2010). In section 3 I discuss Richards' (2001) proposal about the derivation of non-echo *wh*-interrogatives in MWF languages and apply it to Russian in order to determinate its pattern of multiple *wh*-movement in true *wh*-questions. Section 4 recounts key syntactic properties of Russian *wh*-EQs and presents some novel facts concerning their syntax in contexts of multiple *wh*-elements, one of which is echo-introduced (hereinafter in italics, *wh_E*) and the rest proceed from the previous utterance (U; *wh_U*), as in (2):

- (2) a. U: Kto kupil cvety?
 Who-NOM bought flowers-ACC
 'Who bought the flowers?'
 b. EQ: Kto_U kupil čto_E?
 Who-NOM bought what-ACC
 'Who bought *what*?'

The second idea which I explore and partially adopt here is the Sobin's (2010) account of English *wh*-EQs' derivation within the framework of Minimalist Program (particularly Chomsky 2000), considered in section 5, where I will also present evidence against some points of Sobin's proposal and provide a hypothesis about Russian *wh*-EQs' formation which also sheds light on the general behaviour of Russian non-echo *wh*-interrogatives and *wh*-EQs in other typologically different languages. Section 6 summarizes the main points of this paper and brings up some open questions.

2. Previous studies on MWF languages

It is generally accepted nowadays that there are three general language types with respect to *wh*-movement in multiple *wh*-interrogatives, as exemplified in (3): the Chinese type, with all *wh*-phrases in situ; the English type, where only one *wh*-constituent moves overtly and the rest covertly; and the MWF type, illustrated in (3c) from Russian, which requires all *wh*-phrases be fronted overtly:¹

¹ For the purpose of this paper I consider French as a language that combines two strategies: the overt movement of the first *wh*-phrase and, although restricted to a limited number of contexts, the *wh*-in situ option, as shown in (i):

- (i) a. Qu' as-tu donné à qui?
 What have you given to whom
 b. Tu as donné quoi à qui?
 You have given what to whom

For a detailed discussion on that French represents an independent, the forth, type of *wh*-fronting strategy see Bošković (1998, 2000) and Cheng & Rooryck (2000).

- (3) a. Ni xiang-zhidao Lisi weisheme mai-le sheme?
 you wonder Lisi why bought what-ACC
 ‘What do you wonder why Lisi bought?’
 b. What did you give to whom?
 c. Kto čto kogda skazal?
 Who-NOM what-ACC when said
 ‘Who said what when?’

It has been observed that MWF languages, like those in the third group in (3c), although superficially very similar, in fact behave differently in numerous ways regarding multiple *wh*-movement. Since Rudin’s classic (1988) work is it standardly assumed that there are two types of such languages: (i) Multiply-Filled Spec,CP ([+MFS]) languages such as Bulgarian and Romanian, where all *wh*-words move to Spec,CP, as shown in (4a); and (ii) [–MFS] languages like Serbo-Croatian, Polish and Czech, where only one *wh*-phrase moves to Spec,CP and the rest to Spec,IP, as in (4b):

- (4) a. [CP [SpecCP wh₁ wh₂] [IP...]]
 b. [CP [SpecCP wh₁] [IP wh₂...]]

Rudin (1988) reaches this conclusion after observing that [+MFS] languages differ systematically from [–MFS] ones with respect to several criteria. In particular, she shows that Bulgarian, as the [+MFS] language par excellence, allows both multiple *wh*-movement out of an embedded clause and *wh*-extraction out of a *wh*-island, forces the intervening material such as clitics to be placed after the whole set of fronted *wh*-words and, finally, shows the clearest Superiority effects, just the opposite to [–MFS] languages where all these tests result ungrammatical.² According to Rudin, these diagnostics prove the hypothesis that the Bulgarian Spec,CP, but not the Serbo-Croatian one, can be filled with several *wh*-elements in the course of derivation of a multiple *wh*-question.

Richards (2001) adopts the Rudin’s proposal and, among MWF languages, distinguishes between the CP-absorption type such as Bulgarian and Chinese, in (5a), and the IP-absorption type such as Serbo-Croatian and Japanese, in (5b):

- (5) a. [CP [SpecCP wh₁ wh₂] [IP...] [t₁ t₂]]]
 b. [CP [SpecCP wh₁] [IP t₁ wh₂ ...] [t₁ t₂]]]

Richards claims that in the former group of languages *wh*-phrase always undergoes \bar{A} -movement directly to Spec,CP, while in the latter first all *wh*-phrases are adjoined to an IP-projection (by A-movement) and then only the highest *wh*-constituent is fronted to Spec,CP (notice, however, that even in IP-absorption languages long-distance *wh*-movement has properties of \bar{A} -movement, since *wh*-extraction out of a clause takes place through Spec,CP). According to Richards, the crucial difference between two types of languages has to do with the number of specifiers of two different level-projections —CP and IP— they contain. Namely, he argues that CP-absorption languages can have multiple specifiers of CP and, therefore, various escape hatches for the extracted *wh*-element, while IP-absorption languages

² Although see Bošković (2003, 2008) for a different view. He argues that in fact Bulgarian allows extraction out of *wh*-islands only in limited configurations and claims that this restriction is not related to the possibility of multiple *wh*-movement to the left periphery, since the same phenomenon is also observed in several non-MWF languages like Icelandic, Hebrew, Norwegian.

possess multiple specifiers of IP, but only a single Spec,CP. For this reason, only the latter are sensitive to *wh*-island violations, while the former freely allow *wh*-extraction out of an embedded question.

Although Russian was considered neither in Rudin (1988) nor in Richards (2001), in the next section I will apply some of the diagnostics they use to the case of Russian in order to determine the key features of its multiple *wh*-movement strategy in true non-echo questions.

3. Russian as an IP-absorption language

The properties of *wh*-movement in Russian is not a straightforward topic since there is no unanimity among researchers as to whether or not its *wh*-phrases undergo [wh]-driven movement. On the one hand, as discussed above, fronting of a *wh*-word is obligatory both in single and multiple *wh*-questions, which can be taken as evidence that Russian is a normal *wh*-movement language (see Zavitnevich 2005). On the other, since Russian seems not to exhibit strong Superiority effects in multiple questions, it has been claimed that the driving force of *wh*-fronting is of a different nature and in fact is a kind of focus movement (see Stepanov 1998, Bošković 2002).³ In this section I briefly explore multiple *wh*-constructions in Russian and argue that it is an IP-absorption language, hence it exhibits a standard *wh*-movement.⁴

First consider that Russian clearly patterns with Rudin's (1988) [-MFS] languages in that, on the one hand, its fronted *wh*-elements are not subject to a rigid ordering neither in main clauses nor in embedded ones, as examples in (5-7) show, and, on the other, it does not allow *wh*-movement from inside an embedded *wh*-question, as illustrated in (8):⁵

- (5) a. Kto₁ kogo₂ podeloval?
 who-NOM who-ACC kissed
 'Who kissed whom?'
 b. Kogo₂ kto₁ podeloval?
 who-ACC who-NOM kissed

³ The apparent lack of Superiority between the fronted *wh*-phrases, as in (5), leads Stepanov (1998) and Bošković (2002) to claim that Russian is in fact a *wh*-in situ language of the Chinese type, as in (3a), in the sense that it does not have true [wh]-driven movement (to Spec,CP), but rather focus fronting (to some lower position) in order to check the inherent [focus] feature of *wh*-phrases. For the purposes of this paper I do not follow these proposals here and leave a full discussion of the possibility of Russian echo *wh*-phrases to undergo focus-fronting for further research. But see Bailyn (2011) for some empirical and theoretical arguments against Russian being a *wh*-in situ language. On the other hand, see also some alternative accounts such as Strahov (2001) who proposes to equate Russian *wh*-movement with scrambling in general, and Liakin (2005) who argues that the order of *wh*-fronting can be free only when the set of alternative variables implied by both *wh*-words are well known for the speaker.

⁴ For the purposes of this paper I assume the general view on that *wh*-phrases move in order to check the features of the head C (particularly the [wh] feature).

⁵ Another argument for Russian being a [-MFS] language comes from the fact that it allows some intervening material, such as clitics in (i), to be located between the first and the subsequent fronted *wh*-phrases, which, following Rudin (1988), means that they do not form a constituent:

- (i) a. Kto₁ by kogo₂ uvidel? (Bailyn 2011: 103)
 Who-NOM COND. who-ACC saw
 'Who would have seen whom?'
 b. *Kto₁ kogo₂ by uvidel?
 Who-NOM who-ACC COND. saw

- (6) a. Ya sprosil, kto₁ kogo₂ poceloval.
I asked who-NOM who-ACC kissed
'I asked who kissed whom?'
b. Ya sprosil, kogo₂ kto₁ poceloval.
I asked who-ACC who-NOM kissed
- (7) a. Kto₁ čto₂ komu₃ podaril?
who-NOM what-ACC who-DAT gave
'Who gave what to whom?'
b. Kto₁ komu₃ čto₂ podaril?
who-NOM who-DAT what-ACC gave
c. Komu₃ kto₁ čto₂ podaril?
who-DAT who-NOM what-ACC gave
d. ??Komu₃ čto₂ kto₁ podaril?⁶
who-DAT what-ACC who-NOM gave
- (8) a. *Komu ty sprosil, kogda Ivan pozvonil__ __? (Bailyn 2011: 101)
who-DAT you asked when Ivan phoned?
'Who did you ask when Ivan phoned?'
b. *Kogda ty sprosil, komu Ivan pozvonil__ __?
when you asked who-DAT Ivan phoned
'When did you ask who Ivan phoned?'
(ungrammatical on lower reading of *when*)

The examples in (5-7) suggest that Russian is not sensitive to Superiority violations.⁷ Applying Richards' (2001) proposal to Russian, I will hypothesize that it is an IP-absorption language, where first all *wh*-movement takes place by adjunction to one or more IP-projections in a 'tucking in' manner, and then the highest *wh*-phrase moves to Spec,CP.⁸ Bearing this in mind, let us now consider derivations in which two *wh*-phrases move locally resulting in an unmarked (i.e., without Superiority violations) multiple *wh*-questions, like those in (5a):

⁶ Notice that the word order in (7d) sounds bad to the most of speakers. I will not offer a precise account on these facts here, but I will tentatively point out that it can be explained under Richards' (2001) *Principle of Minimal Compliance* (see below). Recall also that Stepanov (1998) remarks the ungrammaticality of the word order *čto* 'what-ACC' > *kto* 'who-NOM' which he tentatively attributes to some phonetic constraint.

⁷ See, however, Rudin (1996) and Meyer (2004) for a different view. In particular, Rudin notes the existence of a strong preference for the leftmost position for the *wh*-subject, reminiscent of Superiority, while Meyer, on a basis of an experimental study, argues for a general preference among speakers for the *wh*-subject to precede the *wh*-object, although with no relevant distinction between matrix and embedded contexts (see also Featherston 2004, 2005 for similar observations in German). All my informants confirm that indeed (5b) and (6b) sounds more marginal and contextually marked with respect to their counterparts in (5a) and (6a) respectively. For the purposes of this paper I will assume that the word order *wh*-ACC > *wh*-NOM gives us a possible (hence, grammatical) result in Russian (e.g., contrary to Bulgarian; see Rudin 1988; Bošković 2002, a. o.), but is contextually determined. For more information on these issues the reader is also referred to Liakin (2005); Dyakonova (2009); Bailyn (2011) and references therein.

⁸ Recall that Richards (2001) does not offer an explanation of what motivates the movement of *wh*-constituents in the first place to Spec,IP. For space reasons, I will not speculate here on the force driving this IP-movement. However see Chernova (2012) who argues that in Russian (as well as in other Slavic languages), after obligatory *v*-to-Asp verb movement (see Svenonius 2004, a. o.), the *v*P-phase extends to AspP (see den Dikken 2007; Gallego 2007; Dyakonova 2009, a. o.) and all *wh*-phrases have to move up to the edge of a new phase in order to be 'probeable' by C°.

- (9) a. [CP [SpecCP wh₁] [IP t₁ wh₂ ...] [t₁ t₂]]]

 b. [CP [SpecCP wh₂] [IP t₂ wh₁ ...] [t₁ t₂]]]

In (9) the head I° attracts all *wh*-constituents to Spec,IP. In order to obey the *Attract Closest* principle (AC), I° attracts the nearest available mover, wh₁, which, so as to obey another condition, *Shortest Move*, must move as short a distance as possible.⁹ The second *wh*-phrase to be attracted by I° is wh₂. As the interaction of AC and *Shortest* forces movement to be maximally local, wh₂ must ride up to a specifier lower than wh₁; so wh₂ ‘tucks in’ to the inner Spec,IP, as (9a) shows. Next, one of the *wh*-words has to move into CP; both AC and *Shortest* makes that wh₁, being the closest *wh*-phrase to C°, is attracted to Spec,CP; hence, the unmarked word order in (9a), which corresponds to (5a), is obtained.

According to Richards (2001:255), sometimes in IP-absorption languages the ordering between *wh*-phrases can occur in a marked way, as in (5b). As he tentatively points out, ‘“IP” stands for a number of IP-level projections, which permit Superiority violations to occur’. As I understand it, he comes to say that in these cases wh₂, instead of the nearest wh₁, is attracted first by I° (hence, violating AC), followed by raising of wh₁ to the lower Spec,IP (obeying *Shortest*). Then, wh₂ being the highest *wh*-constituent at the IP-level, C° attracts it to its specifier; thus, both AC and *Shortest* are satisfied, so the resulting word ordering, although marginal and contextually determined, does not lead to ungrammaticality.

Let us consider now a case with more than two *wh*-phrases, such as the ternary *wh*-questions in (7), where, as we have seen, the second and the third *wh*-constituents are freely ordered. As Richards points out, that is due to the interaction of the *Principle of Minimal Compliance* (PMC) with both AC and *Shortest*. According to Richards (2001: 210), PMC ‘allows an attractor which has obeyed a constraint to be free of that constraint for the rest of the derivation’. In (7), the head I° is subject to AC, but once it has attracted the highest *wh*-attractee, wh₁ *kto* ‘who-NOM’, it can now freely violate this constraint —since it has already paid the ‘AC tax’— and attract either of the remaining *wh*-elements. Thus, in (7b) wh₂ and wh₃ result freely ordered —although always in a ‘tucking in’ manner due to *Shortest*—, as (10) shows:^{10,11}

⁹ Richards (2001:98) argues that the «attractor-oriented» principle *Attract Closest*, (i), has to be satisfied alongside the «mover-oriented» condition *Shortest Move*, (ii):

(i) *Attract Closest*:

a. An attractor K attracts a feature F, creating a copy α’ of an element α containing F, and Merging α’ with K. The relation between α’, K, and F must all obey *Shortest*.

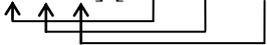
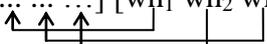
b. [α’ F’] K [α F]

(ii) *Shortest Move*:

A dependency between the members of a pair P of elements {α, β} obeys *Shortest* iff no well-formed dependency could be created between the members of a pair P’, created by substituting γ for either α or β, such that the set of nodes c-commanded by one element of P’ and dominating the other is smaller than the set of nodes c-commanded by one element of P and dominating the other.

¹⁰ As Pesetsky (2000) notes, *Shortest Move*, contrary to AC, is not subject to PMC. It means that, after attracting the first *wh*-phrase, the relevant head can not violate *Shortest*; hence, the subsequent instances of movement always ‘tuck in’.

¹¹ Recall that under Richards’ (2001) account, the word order in (7c), where wh₃ is the leftmost *wh*-phrase, is derived similarly to (5b) and should be attributed to the particular characteristics of the IP-absorption languages to violate occasionally AC —when the wh₃, instead of the nearest wh₁, is attracted first by I° and then by C°— which leads to a contextually marked, although possible, word order. We can hypothesize that (7d) results

- (10) a. [CP [IP] [wh₁ wh₂ wh₃]]

 b. [CP [IP] [wh₁ wh₂ wh₃]]


Let us turn now to the examples in (8), which prove that Russian is sensitive to *wh*-island violations. Following Richards, I take it as evidence that it is an IP-absorption language and as such has only one specifier of CP in true *wh*-questions (recall that under his analysis even in such languages long-distance *wh*-movement takes place via CP-level). In other words, it means that there are no available escape hatches for the extracted *wh*-phrase in Russian, in contrast to CP-absorption languages. Thus, the ungrammaticality of (8a) can be accounted for by the fact that the embedded Spec,CP is filled by *komu* ‘who-DAT’ at the point at which *kogda* ‘when’ moves to the matrix Spec,CP, so a *wh*-island violation results.

In sum, applying Rudin’s (1988) and Richards’ (2001) diagnostics, I argued that Russian is a [–MFS] or IP-absorption language where all *wh*-movement takes place to Spec,IP and then the highest *wh*-phrase is fronted to Spec,CP. With this theoretical background in mind, now we are in a position to consider the derivation of Russian *wh*-EQs, which key syntactic properties are recounted in the next section.

4. Syntactic features of Russian *wh*-EQs

We can define EQs as questions which are usually pronounced in immediate response to an utterance (U) to request for repetition or to express surprise. Bartels (1997) call the former type ‘unheard’ and the latter ‘amazement’ echoes (see also Wachovicz 1974 and Radkevich 2008). In this paper I mainly deal with a ‘request-for-repetition’, or ‘unheard’, reading of *wh*-EQs, when the speaker B echoes the speaker A’s U just as it is, except for a part—which is not heard or not correctly understood—and replaces it by the echo-introduced *wh*-phrase, as in (11b) and (11c):

- (11) a. U: Ivan prinës gusenicu.
 Ivan-NOM brought worm-ACC
 ‘Ivan brought a worm’
 b. EQ₁: Ivan prinës čto?
 Ivan-NOM brought what-ACC
 ‘Ivan brought what?’
 c. EQ₂: Čto prinës Ivan?
 what-ACC brought Ivan-NOM
 d. EQ₃: Ivan čto prinës?
 Ivan-NOM what-ACC brought

First, recall that on the ‘unheard’ echo reading the introduced *wh*-phrase can both remain in its lower original position, as in (11b), or rise to the left edge of the question, as in (11c,d).¹²

ungrammatical because the movement of the *wh*₃ up to Spec,IP does not pay the AC tax, thus, the PMC cannot be applied and, consequently, *wh*₁ and *wh*₂ cannot be freely ordered.

¹² Notice that Markova *et al.* (2009) report similar judgments for Bulgarian and Polish, claiming that these languages also allow *wh*-in situ in EQs (*cf.* Bošković 2002):

Taking into account the generally assumed obligatoriness of *wh*-movement in Russian, the former options are not surprising, contrary to the latter. Actually, it has been claimed that in Slavic languages even echo *wh*-phrases must undergo movement, especially on the ‘request-for-repetition’ reading (see Wachowicz 1974; Kiss 1987; Stepanov 1998, among others), while (11b) is acceptable only on the ‘amazement’ reading (see Bošković 1997, 2002). However my data shows that (11b), with a *wh*-word in situ, is considered by native speakers strongly ungrammatical only on the true question reading, while it significantly improves on both echo readings.

Secondly, in contrast to normal non-echo questions, whereby the speaker asks about the properties of the actual world, EQs seek to reduce the speaker’s ignorance about the properties of the ongoing discourse (see Šimik 2009). Therefore we can say that EQs do not denote a set of propositions, but a set of Us.¹³ I believe this is the key factor in understanding their particular behaviour. Thus, my claim is that the U’s sentence-type (declarative / interrogative / exclamative / imperative) determines the syntactic features of EQs.

In order to demonstrate my proposal I will consider here two types of Russian *wh*-EQs: (i) *wh*-EQs build on a previous declarative U, with a single *wh*-phrase introduced via echo, as in (11); and (ii) *wh*-EQs such as (12) based on a *wh*-interrogative U and containing at least two *wh*-constituents: a true *wh*-phrase inherited from the U, such as *kto* ‘who-NOM’ in (12b), and an echo-inserted *wh*-word, usually emphatically stressed, such as *čto* ‘what-ACC’ in (12):

- (12) a. U: Kto kupil cvety?
 who-NOM bought flowers-ACC
 ‘Who bought the flowers?’
 b. EQ: Kto₁ kupil čto₂?
 who-NOM bought what-ACC
 ‘Who bought *what*?’

Next, as it has been noted by Sobin (2010), it is worth mentioning that, unlike in non-echo multiple *wh*-questions, where a proper response entails giving values for each *wh*-word (hence, pair-list or single-pair readings arise), in ‘unheard’ *wh*-EQs only the echo-introduced *wh*-phrase receives wide scope, while, in contrast, the *wh*-word inherited from the U requires no response and rather looks like a *wh*-indefinite. Thus, an EQ such as (12), with two *wh*-elements, has neither pair-list nor single-pair readings, contrary to true multiple *wh*-questions. Recall in fact that the only acceptable answers to (12b) are given in (13a) and (13b), while (13c) would be inappropriate.

- (13) a. Cvety.
 flowers-ACC
 ‘The flowers.’
 b. (Ja sprosil) kto kupil cvety.
 I asked who-NOM bought flowers-ACC

-
- (i) a. Ivan e kupil kakvo? (Bulgarian)
 Ivan-NOM AUX bought what-ACC
 ‘Ivan bought what?’
 b. Iwan kupil co? (Polish)
 Ivan-NOM bought what-ACC?

¹³ For that reason EQs are often considered ‘metarepresentations’, ‘metalinguistic questions’ or ‘interpretations of attributed representations’, in the sense that they are ‘interrogative interpretations of interpretations of somebody’s thoughts’ (Escandell 2002:872). See also Noh (1998); Iwata (2003) and references therein.

- ‘(I asked) who bought the flowers.’
- c. *Sestra. / *Sestra kupila cvety.
sister-NOM. / sister-NOM bought flowers-ACC
‘The sister.’ / ‘The sister bought the flowers.’

Finally, as (11) demonstrates, within an EQ that echoes a declarative U the echo *wh*-phrase, once it enters into the derivation, can both remain in situ or undergo movement. But what is especially puzzling about Russian EQs is that the echo-introduced *wh*-word disposes of these two options even within EQs built on a *wh*-interrogative U. As (14b) and (15b) show, the echo *wh*-constituent can remain in situ or be fronted to the left of the verb, as in (14c) and (15c). However, strikingly, despite being the echo-inserted *kto* ‘who’ a Nominative, it can only marginally end up above the fronted *wh*-phrase(s) inherited from the original U, as (14d) and (15e) demonstrate, and clearly cannot intervene between them (in the case of ternary questions), as in (15d):¹⁴

- (14) a. U: Čto skazal Bartolo?
what-ACC said Bartolo-NOM
‘What did Bartolo say?’
- b. EQ: Čto₂ skazal kto₁?
what-ACC said who-NOM
‘What did *who* say?’
- c. EQ: Čto₂ kto₁ skazal?
what-ACC who-NOM said
- d. EQ: ^{?/#}Kto₁ čto₂ skazal?
who-NOM what-ACC said
- (15) a. U: Čto komu podaril Bartolo?
what-ACC who-DAT gave Bartolo-NOM
‘What did Bartolo give to whom?’
- b. EQ: Čto₂ komu₃ podaril kto₁?
what-ACC who-DAT gave who-NOM
‘What did *who* give to whom?’
- c. EQ: Čto₂ komu₃ kto₁ podaril?
what-ACC who-DAT who-NOM gave
- d. EQ: *Čto₂ kto₁ komu₃ podaril?
what-ACC who-NOM who-DAT gave

¹⁴ The judgments in (14-15) proceed from control queries of 16 Russian native speakers who were explicitly asked to compare constructions with the moved echo *wh*-phrase and those with the echo *wh*-word in situ. Contrary to the judgments reported in Stepanov (1998) and Bošković (2002), almost all my informants have the option of leaving the echo *wh*-phrase in situ. However there is some variation regarding the landing site of the moved echo *wh*-phrase: most speakers prefer to place it to the left of the verb, below the lowest U’s *wh*-word, as in (14c) and (15c); and only few of them can also allocate it to the leftmost position, as in (14d) and (15e), while for the rest this option results unacceptable. In fact, in these examples the symbol # means that rather than EQs (where only one *wh*-phrase has echo reading) corresponding constructions tend to be interpreted by the speakers as true multiple *wh*-questions or as ‘total EQs’ where *all* its *wh*-phrases are introduced via echo. In other words, in (14d) it seems quite difficult to interpret only *kto* ‘who-NOM’ as a single echo *wh*-phrase, when it is followed by the lower non-echo U’s *čto* ‘what-ACC’. Notice however that this ‘single-echo’ reading becomes more accessible if the leftmost echo *wh*-phrase, as in (14d) and (15e) is separated from the lowest non-echo one by a pause. The option of leaving the echo *wh*-word between the fronted U’s *wh*-phrases, as in (15d), is always discarded.

- e. EQ: ^{?/#}*Kto*₁ *čto*₂ *komu*₃ *podaril?*
 who-NOM what-ACC who-DAT gave

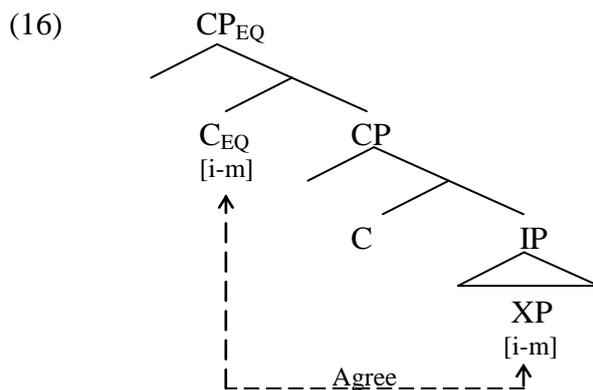
The examples in (14-15) show that the grade of acceptability of Russian *wh*-EQs in contexts of multiple *wh*-elements (where only one *wh*-phrase is echo-introduced and, hence, receives wide scope) seems to have nothing to do with Superiority effects. The linear word order among the *wh*-constituents within an EQ seems to be subject to some different constraints.

The other properties of EQs as those discussed along this section (in concrete, maintenance of the U's sentence-type, the echo-inserted *wh*-phrase in situ or optionally fronted and, finally, wide scope only for the echo *wh*-constituent) can also look significantly challenging. However, in the next section I will offer a tentative syntactic analysis which can account on these issues. I will show that some EQs' features indeed are consequence of the particular syntactic structure underlying this type of questions, but some others —and probably the most odd— obey the same principles of movement that non-echo questions do. Thus, as we will see, apparent exceptions to the general rules of question formation, when analyzed more closely, are not exceptions at all.

5. The analysis of Russian *wh*-EQs

As has been announced in section 1, there is a recent analysis of English *wh*-EQs, offered by Sobin (2010), which I will partially adopt here. In particular, I will follow his claim that the echo-challenge (see examples in (1)) can be explained 'in terms of independent necessary scope assignment mechanisms and a complementizer that subordinates the utterance being echoed...' (Sobin 2010:131).

Sobin proposes that the formation of an EQ, in contrast with non-echo interrogatives, involves a double CP-structure like that in (16), where a superior CP-projection, CP_{EQ}, selects a copy of the already derived CP structure of the echoed U:



Notice that under this two CP-level approach, the maintenance of the U's sentence type (declarative, interrogative, etc.) is fully expected. In order to address the necessary wide scope for the echo-inserted *wh*-phrase —at the expense of its loss for the U's *wh*-words— Sobin claims that the superior head C_{EQ} is a probe for any echo-inserted *wh*-phrase and binds it at distance via feature agreement. Thus, it has no need in moving to the specifier of CP_{EQ}, but rather remains in situ.

As observed in Chernova (2010), empirical evidence for that double-CP structure comes from the distribution of Spanish quotative particles in EQs, as shown in (18-19). Spanish echo

constructions exhibit two particles: *si* ‘whether’, which is mandatory in EQs that reproduce a non-echo yes/no question, and optional *que* ‘that’, which can appear in all types of EQs, independently of the U’s sentence-type. As argued by the author, within Spanish EQs *si* can be interpreted as an overt *wh*-operator situated in the U’s Spec,CP; while *que* is directly merged in the highest C°_{EQ}, as represented in (19). Interestingly, the similar double-CP structure, with the same particles, has also been attested for other types of quotative constructions, such as embedded questions, as in (17) (see Rigau 1983; Suñer 1991; Bruccart 1993):

(17) a. [_{CP} Juan pregunta [_{CP} C (*que*) [_{CP} *si* C [_{TP} María T lee el libro]]
 Juan-NOM asks that whether Maria-NOM reads the book-ACC
 ‘Juan asks whether Maria reads the book’

(18) a. U: ¿Lee María el libro?
 reads Maria-NOM the book-ACC
 ‘Does Maria read the book?’
 b. EQ: ¿(*Que*) *si* lee María *qué*?
 that whether reads Maria-NOM what-ACC
 ‘Does Maria read *what*?’

(19) a. U: [_{CP} Ø C lee_i [_{TP} María T_i el libro]]
 b. EQ: [_{CPEQ} C *que* [_{CP} *si* C lee_i [_{TP} María T_i *qué*]]]

Turning to Sobin’s (2010) original proposal —though without going into too much detail—, he argues that the head C°_{EQ} bears an uninterpretable feature [i-m] (interrogatively-marked), which makes it a probe for any goal associated with the same feature. Such is, he claims, the case of echo-inserted *wh*-phrases, which bear [i-m]. So, while C° of a non-echo *wh*-interrogative is limited to probing only expressions associated with the [wh] feature, C°_{EQ} searches and values constituents with the [i-m] feature. That is how only the echo *wh*-phrase receives wide scope.¹⁵ Moreover, according to Sobin, C°_{EQ} is not associated with [EPP] (understood as in Chomsky 2000), so it can not trigger any movement.

However, it is worth mentioning the crucial difference between English and Russian EQs with respect to movement of the EQ-introduced *wh*-phrase. While in Russian EQs —regardless the sentence-type of the echoed U (recall from (11) and (14-15))— the echo *wh*-phrase can remain in the original position or optionally move, in English the possibility of optional raising is available only within EQs that echo a declarative U, as the following paradigm shows:

(20) a. U: Mary had tea with Cleopatra. (Sobin 2010:132)
 b. EQ: Mary had tea with *who*?

¹⁵ Another analysis would be to assume that both C°_{EQ} and the echo *wh*-phrase bear a familiar [wh] feature. Thus, the echo-inserted *wh*-word would be assigned wide scope as a result of being the unique active non-valued *wh*-constituent at the stage when the superior CP, CP_{EQ}, is projected, since the U’s *wh*-phrase(s) have already checked their [wh] feature by moving to the specifier of the U’s CP. The problem for assuming the same [wh] feature for both interrogative heads consists in that in that case the intervening U’s *wh*-phrases would block agreement between C°_{EQ} and the echo *wh*-constituent. Recall that the same reason can be considered a motivation for the exceptional double CP-structure of EQs, with two different heads C°. I leave for future study a deeper investigation of the feature-checking mechanism in EQs as well as the possibility of reducing two CPs to a single one.

- c. EQ: *Who* did Mary have tea with?
- (21) a. U: What did Dracula drink at Mary's party? (Sobin 2010:132)
 b. EQ: What did *who* drink at Mary's party?
 c. EQ: **Who* drank what at Mary's party?

This fact makes Sobin to distinguish between two types of EQs: on the one hand, *pseudo-EQs* such as (20c), which, according to him, are just normal interrogatives formed along general rules, but pronounced with a strong fall-raising intonation (i.e., they do not involve a superior CP_{EQ}-level), and, on the other, *syntactic-EQs* like those in (20b) and (21b), which never exhibit *wh*-movement.¹⁶ In sum, as Sobin claims, a *wh*-question, in order to be interpreted as an EQ, *must* keep the *wh*-phrase it introduces in its low original position.

Nevertheless, anticipating the final outcome of this paper, I modify Sobin's (2010) proposal and argue that at least in Russian *all wh*-EQs—even those with a displaced echo-inserted *wh*-phrase—can be analysed as double-CP structures. On my approach, echo *wh*-movement is a kind of the familiar *wh*-extraction from a subordinated clause—in this case, the embedded U's CP-level.

The central argument for my proposal concerning the syntax of *wh*-EQs comes from the fact that in Russian an echo-inserted *wh*-phrase has two clear options once it enters into derivation, as illustrated by the examples in (11) and (14-15). Thereby, when the head C^o_{EQ} is projected, it scans down the tree searching for the nearest available constituent associated with the feature it attracts—as I have already discussed, both C^o_{EQ} and an echo *wh*-phrase bear the same feature, [i-m]. When the probe finds the goal, it has a choice: it can either trigger feature agreement (or *feature movement*, in terms of Pesetsky 2000) or overt phrasal *wh*-movement.¹⁷

First, let us consider the former option, when only the relevant echo *wh*-phrases's feature—and not the whole constituent—is attracted by C^o_{EQ}, hence the EQ-introduced 'unheard' *wh*-phrase remains in situ. My intuition is that this fact is related to the phenomenon of D-linking nature (see Pesetsky 1987, 2000).¹⁸ Following Pesetsky's (1987) original observation on that the range of felicitous answers in questions with D-linked *wh*-phrases is contextually limited to a set of entities the speaker and the hearer have in mind, I will hypothesize that

¹⁶ See also Fiengo (2007:76), who distinguishes between two types of *unheard* EQs: those where the speaker presents himself as being unable to complete the utterance and, thus, requests for repetition of the part of a sentence that he did not hear, and those where 'the questioner's interest resides not so much in the unheard bit of language but in the item it denotes'. He claims that while in the latter type of questions the *wh*-word can appear both in situ or fronted, in the former type it can only remain in situ.

¹⁷ The reasons of such optionality still remain unclear as well as the existence of any general preference for one type of operation over the other. For a detailed discussion of similar issues see Pesetsky (2000), who considers feature movement as a subcomponent of overt phrasal movement. It is possible in fact that the position which the echo *wh*-phrase occupies in the sentence affects the meaning of a particular EQ (see the previous note), although this difference seems to be very subtle.

¹⁸ Pesetsky (1987) claims that it is necessary to distinguish between two types of in situ *wh*-phrases: D(iscourse)-linked (like *which*) and non-D-linked (like *who*, *what*) interrogative constituents. In order to explain the sometimes exceptional behaviour of the former group (e.g., the absence of Superiority effects in English, as shown in (i)), Pesetsky proposes that although generally in situ *wh*-words must move to Spec,CP at LF (via covert phrasal movement), D-linked *wh*-phrases must not: they may (optionally) take scope via unselective binding by the Q operator in C^o. On the Pesetsky's (2000) analysis, the behaviour of D-linked *wh*-phrases is due to their ability to optionally take scope via feature movement rather than phrasal movement, which is generally required for normal *wh*-constituents:

- (i) a. Which man_i did you persuade t_i to read which book? (Pesetsky 1987:106)
 b. Which book_j did you persuade which man to read t_j?

echo *wh*-phrases are contextually determined too. Notice that Pesetsky's (1987:120) description of D-linked constituents —they are “familiar” rather than novel, returning old entities in the filing system of discourse’— also fits into echo *wh*-phrases. Thus, they are D-linked in the sense that the set of their potential referents is restricted to only one element, which has been explicitly pronounced by the speaker in the immediately previous discourse and both the speaker and the hearer know that, although the latter ignores its exact value.

Let us turn now to the second option, when the C°_{EQ} triggers the overt phrasal movement of the EQ-introduced *wh*-phrase from the embedded U's CP-level, which, according to the general assumption, should pass through the (intermediate) CP-position, i.e., the embedded U's CP. When such position is free —in particular, when the echoed U is a declarative— the relevant *wh*-phrase can appear at the leftmost position, both in Russian and English (compare (11) and (20)). On the contrary, when the original U's *wh*-phrase itself has moved to the local Spec,CP, the further extraction of the echo-inserted *wh*-word becomes much more difficult. I claim that in contexts when the lower Spec,CP is already occupied it is the number of additional landing sites either at CP or IP level that predicts the unavailability of echo-movement in English and its possibility in Russian (compare (14) and (21)).

However, as discussed in previous sections, Russian seems to be an IP-absorption language, which, according to Richards (2001), means that it is sensitive to *wh*-island effects (since it has no multiple specifiers of CP). I argue that this is the reason of why most of the consulted speakers consider the questions in (14d) and (15e) difficult to interpret.¹⁹ Nevertheless, this apparent disadvantage of being an IP-absorption language has some other consequences: there will always be a specifier of IP available for local *wh*-movement (contrary to languages like English, where only one *wh*-phrase moves overtly since there are no additional landing sites for other *wh*-constituents). I claim that this is an explanation of why most speakers accept the echo questions such as (14c) and (15c) where the echo *wh*-phrase appears immediately above the verb, but below the fronted U's *wh*-elements.

Bearing this in mind, we are now in a position to offer a possible account of Russian *wh*-EQs. First, let us consider the derivation of an EQ reproducing a declarative U such as (11), repeated here, which would have roughly the structure in (22):

- (11) a. U: Ivan prinēs gusenicu.
Ivan-NOM brought worm-ACC
'Ivan brought a worm'
b. EQ: Ivan prinēs čto?
Ivan-NOM brought what-ACC
'Ivan brought *what*?'
c. EQ: Čto prinēs Ivan?
what-ACC brought Ivan-NOM

- (22) a. [_{CP_{EQ}} C^o_{EQ} [_{CP} [_{IP} [_{XP}]]]]
b. [_{CP_{EQ}} C^o_{EQ} [_{CP} [_{IP} [_{wh_{EQ}}]]]]
 ↑-----↓ ↑-----↓

Here the superior CP_{EQ} selects a copy of the U's CP (which, being a declarative, has its Spec,CP unoccupied) and the echo *wh*-phrase is inserted into the derivation. It can remain in

¹⁹ The fact that some speakers accept echo constructions such as (14d) and (15e), where the echo *wh*-phrase appears above the U's *wh*-constituent(s), can indicate that at least in echo contexts the embedded CP is able to hold more than one specifier for the purposes of extraction. I leave this question for future research.

situ and satisfy the C°_{EQ} 's [i-m] via feature agreement, resulting in (11b), or it can undergo further *wh*-movement to the leftmost position through the available specifier of the embedded CP, as shown in (19b).²⁰

Now let us think on *wh*-EQs that echo a binary *wh*-question, such as (23), which derivation proceeds as follows:

- (23) a. U: Kto₁ čto₂ prinēs Farižu?
 who-NOM what-ACC brought Farižu-DAT
 ‘Who brought what to Fariž?’
 b. EQ: Kto₁ čto₂ prinēs komu₃?
 who-NOM what-ACC brought who-DAT
 ‘Who brought what to *whom*?’
 c. EQ: Kto₁ čto₂ komu₃ prinēs?
 who-NOM what-ACC who-DAT brought
 d. EQ: *Kto₁ komu₃ čto₂ prinēs?
 who-NOM who-DAT what-ACC brought
 e. EQ: ^{?/#}Komu₃ kto₁ čto₂ prinēs?
 who-DAT who-NOM what-ACC brought

- (24) a. [_{CP_{EQ}} C^o_{EQ} [_{CP_{WH}} wh₁ [_{IP} t₁ wh₂ [_{t₁ t₂ XP]]]]]}
- b. [_{CP_{EQ}} C^o_{EQ} [_{CP_{WH}} wh₁ [_{IP} t₁ wh₂ [_{wh_{EQ}]]]]]}
-

Here, again, CP_{EQ} selects a copy of the U's CP_{WH} —with its correspondent *wh*-phrases already fronted, as in (24a)— and the echo *wh*-phrase is inserted into the derivation. As shown in (24b), it can stay in situ resulting in (23b), or undergo phrasal movement to the inner Spec,IP obeying Shortest, (23c). Notice that movement to the outer Spec,IP would violate Shortest.²¹ On the other hand, as discussed above, the echo *wh*-phrase cannot raise to the specifier of CP_{EQ} since the intermediate landing site, Spec, CP_{WH} , is already occupied by the U's fronted *kto* ‘who-NOM’. Hence, we can conclude that the difficulty to interpret *kto* as a single echo *wh*-phrase in (23e) is due to a *wh*-island violation.

6. Conclusions and further questions

²⁰ I will not speculate here about the exact landing site of the echo *wh*-phrase extracted from a declarative U's CP: whether it moves to the specifier of CP_{EQ} or just stops in the embedded Spec,CP and then agrees with C°_{EQ} via feature movement. This questions as well as crosslinguistic comparison of such constructions will be addressed in future research.

²¹ Notice that the ungrammaticality of (23d) could be due to different reasons. On the one hand, one possible explanation is the violation of Shortest Move principle by means of movement of the echo *wh*-phrase to the outer Spec,IP and not to the inner one (hence, the movement does not ‘tuck in’). However, another interesting possibility to consider is that the U's *wh*-phrases, as chunks of structure that repeat what is just been said and, more generally, are used as unanalysed wholes, are subject to the atomisation operation. Consequently, they cannot be separated by any additional material. I leave the deeper research of this possibility for future research.

In sum, partially adopting Sobin's (2010) proposal for English EQs, I put forward an analysis of Russian *wh*-EQs as a double CP-structure phenomenon which suggests that formation of this type of interrogatives is less contrary to the derivation of true *wh*-question than it could appear. I argued that in Russian an echo *wh*-phrase has at least two options once it enters into derivation: (i) it can remain in situ, even on 'request-for-repetition' readings (*cf.* Stepanov 1998 and Bošković 2002) and be scope-valued by the relevant C°_{EQ} via feature agreement (similarly to D-linked *wh*-constituents; see Pesetsky 1987, 2000); and (ii) it can optionally undergo subsequent [wh]-driven movement. I hypothesized that the optional raising of the EQ-inserted *wh*-phrase is closely related to the issue of *wh*-extraction: it can be extracted out of an embedded declarative CP (being its specifier available), but its movement out of an embedded *wh*-question is blocked, since the embedded CP_{WH} forms a *wh*-island. I argued that this is due to the fact that Russian is an IP-absorption language (applying Richards' 2001 diagnostics). On the other hand, this account also predicts why in Russian EQs that are built on a previous *wh*-interrogative U the echo *wh*-phrase still can move in a 'tucking in' manner to a preverbal position. I argued that the account offered here is a possible way of analysing EQs, a complex and understudied phenomenon within syntactic research. However, some questions mentioned throughout this paper —e.g., whether Russian allows for multiple specifiers of CP; whether the U's fronted *wh*-phrases are atomic constructions; whether *wh*-EQs can be reanalysed as a single CP-structure, a.o.— remain for future research.

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Ekaterina Chernova
 Universitat de Girona
ekaterina.chernova@hotmail.com

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Sometimes conjuncts, sometimes adjuncts: *te*-clauses in Japanese and the C-T relation

Shintaro Hayashi

The aim of this paper is to provide novel support for Chomsky's (2000) conception of C-T relation by examining Japanese *te*-clauses. *Te*-clauses, as often noted, can function as either adverbials or clausal conjuncts. We first show that while a *te*-clause without an overt subject may adjoin to the root syntactic tree, a *te*-clause that contains a lexical subject cannot, but can only be coordinated with the root syntactic tree. Then we argue that this correlation between the presence/absence of a lexical nominative subject in *te*-clauses and the interpretative (in)variability of them follows straightforwardly from Chomsky's (2000) C-T dependency, put together with a fact about *te*-clauses that we independently establish, i.e. that, whether finite or nonfinite, they are always TPs.

1. Introduction

Chomsky proposes that finite T ("nondefective" T in Chomsky's terminology), as opposed to nonfinite (or "defective") T, must be selected by C (Chomsky 2000). According to this proposal, the locus of nominative Case is actually C, not T. In this paper we attempt to provide empirical evidence for this conception of the C-T relation by examining Japanese *te*-clauses. Pairs like the one given in (1) will be mainly discussed here (Δ represents a null subject)¹.

- (1) a. [S₂ isya-ga [S₁ Δ kono kusuri-o tukaw-te] kanzya-o naosita.]
doctor-NOM this medicine-ACC use-TE patient-ACC cured
'[S₂ [S₁ By Δ using this medicine], the doctor cured the patient].'
b. [S₁ **isya-ga** kono kusuri-o tukaw-te] [S₂ kanzya-ga naotta.]
doctor-NOM this medicine-ACC use-TE patient-NOM recovered.

¹ This paper does not deal with all instances in which the morpheme *-te* appears, and what Nakatani (2004) calls "V-*te*-V predicates" which consist of two verbs with the mediating morpheme *-te* such as the following will not be examined.

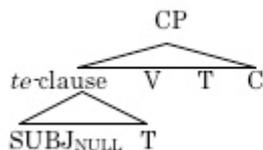
- (i) Taro-wa hon-o mot-te kita.
-TOP book-ACC hold-TE came
'Taro brought the book (Taro held the book and came).'

To clarify this point, the data discussed in this paper often contains some other constituents such as NP and an adverb between *-te* and the second verb so that the surface string will be something like V-*te*-NP/adverb-V, rather than V-*te*-V.

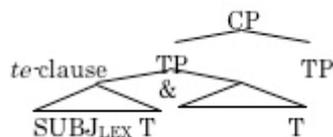
‘[_{S1} The doctor used this medicine] and [_{S2} the patient recovered].’

What is of interest here is that a *te*-clause that lacks a lexical subject (henceforth ‘ S_1 - $te_{NULL\ SUBJ}$ ’) like the one in (1a) can be interpreted as an instrumental adjunct, while a *te*-clause that contains an lexical subject (henceforth ‘ S_1 - $te_{LEX\ SUBJ}$ ’) like the one in (1b) can only be interpreted as a clausal conjunct coordinated with S_2 .

(2) S_1 - $te_{NULL\ SUBJ}$:



(3) S_1 - $te_{LEX\ SUBJ}$:



This correlation that we are interested in can be expressed as the following generalization.

(4) **Nominative Subject Generalization (NSG):** *Te*-clauses must be interpreted as clausal conjuncts, rather than adverbial adjuncts, if they have lexical nominative subjects.

In what follows, we show that Chomsky’s (2000) conception of the C-T relation straightforwardly derives the NSG in (4).

2. The data

Let us begin by examining the validity of the generalization in (4). We have three empirical arguments for the NSG. The first one has to do with the (im)mobility of S_1 -*te* under clefting. As discussed in Hiraiwa & Ishihara (2002), cleft sentences in Japanese display island-sensitivity, as shown in (5) and (6). In the ungrammatical example (6), the gap is contained in the relative clause, which is an island, suggesting that syntactic movement is involved in cleft formation.

(5) Taro-ga e_i tabeta-no-wa kono ringo-o_i da.
 Taro-NOM ate-C-TOP this apple-ACC COP
 ‘It is this apple that Taro ate.’

(6) *Taro-ga [_{ISLAND} e_i tabeta] hito-ni atta-no-wa kono ringo-o_i da
 Taro-NOM ate person-DAT met-C-TOP this apple-ACC COP
 ‘It is this apple that Taro met the person who ate.’

Japanese allows clefting of adjuncts, but disallows that of conjuncts, as illustrated in (7) and (8). The adjunct phrase *kono heya-ni* ‘in this room’ in (7) can undergo clefting, but the conjunct *John-to* ‘John and’ in (8) cannot.

- (7) [John to Mary]-ga e_i atumatta-no-wa kono heya-ni_i da.
 John and Mary-NOM gathered-C-TOP this room-in COP
 ‘It is in this room that John and Mary gathered.’
- (8) * $[e_i$ Mary]-ga kono heya-ni atumatta-no-wa John to_i da.
 Mary-NOM this room-in gathered-C-TOP John and COP
 ‘It is John that and Mary gathered in this room.’

With this background, let us turn to clefting of S_1 -*te*. The fact is that S_1 -*te*_{NULL SUBJ} can undergo clefting, whereas S_1 -*te*_{LEX SUBJ} resists such movement. A similar observation can be found in Uchimaru (2006) as well.

- (9) [S_2 isya-ga t_i kanzya-o naosita]-no-wa [S_1 Δ kono kusuri-o tukaw-te]_i da.
 doctor-NOM patient-ACC cured-C-TOP this medicine-ACC use-TE COP
 ‘It is [S_1 by Δ using this medicine]_i that the doctor cured the patient t_i .’
- (10) * t_i [S_2 kanzya-ga naotta]-no-wa [S_1 isya-ga kono kusuri-o tukaw-te]_i da.
 patient-NOM recovered-C-TOP doctor-NOM this medicine-ACC use-TE COP
 ‘It is [S_1 the doctor used this medicine]_i that the patient recovered t_i .’

This asymmetry is reminiscent of Ross’ (1967) Coordinate Structure Constraint (CSC), which bans movement of a conjunct (cf. Null Conjunct Constraint in Grosu 1981).

- (11) *What_i did you buy [a bike and t_i]?

The immobility of S_1 -*te*_{LEX SUBJ} illustrated in (10) can be captured by the CSC if S_1 -*te*_{LEX SUBJ}, but not S_1 -*te*_{NULL SUBJ}, is a conjunct and therefore cannot be moved.

The second argument for the NSG in (4) is also based on syntactic movement. An argument NP contained in the main clause S_2 may be clefted when the subject of S_1 -*te* is null, whereas such a process is prohibited if the subject is overt (cf. Uchimaru 2006).

- (12) [S_2 isya-ga [S_1 Δ kusuri-o kaihatusi-te] t_i naosita]-no-wa
 doctor-NOM medicine-ACC invent-TE cured-C-TOP
 yakuza-o_i (3-nin) da.
 gangster-ACC 3-CL COP
 ‘It is three gangsters_i that [S_2 the doctor cured t_i [S_1 by Δ inventing the medicine].’
- (13) * [S_1 isya-ga kusuri-o kaihatusi-te] [S_2 kangosi-ga t_i naosita]-no-wa
 doctor-NOM medicine-ACC invent-TE nurse-NOM cured-C-TOP
 yakuza-o_i (3-nin) da.
 gangster-ACC 3-CL COP
 ‘It is three gangsters that [S_2 the doctor invented the medicine] and [S_1 the nurse cured t_i].’

This contrast is again reminiscent of the relevance of the CSC, which bans movement *out of* a conjunct as well.

(14) *That boy_i, the dog [bit Bill this morning] and [chased t_i last night].

In (14), topicalization of *that boy* has taken place from the second conjunct only, and the result is bad. If S_1-te in (13) is coordinated with S_2 , then the movement out of S_2 in (13) would count as movement out of a conjunct, and thus be ruled out on a par with (14).

Scope of negation with respect to S_1-te provides another argument for the NSG. Kato (1985) observes that negation appearing in the main clause S_2 scopes over *te*-clauses if the subject of the clause is null.

(15) [S_2 isya-ga [S_1 Δ atarasii kusuri-o tukaw-te] kanzya-o naos-**anakar**-ta.]
 doctor-NOM new medicine-ACC use-TE patient-ACC cure-NEG-PAST
 ✓ ‘It is not the case that the doctor cured the patient by using new medicine.’ $\neg(S_1 \& S_2)$

(16) [S_1 **isya-ga** atarasii kusuri-o tukaw-te] [S_2 kanzya-ga naor-**anakar**-ta.]
 doctor-NOM new medicine-ACC use-TE patient-NOM recover-NEG-PAST
 * ‘It is not the case that the doctor used new medicine and the patient recovered.’
 $\neg(S_1 \& S_2)$
 ✓ ‘The doctor used new medicine and it is not the case that the patient recovered.’
 $(S_1 \& \neg S_2)$

The $\neg(S_1 \& S_2)$ reading in which the negation \neg scopes over S_1-te is not available in (16). To see this, let us consider the following scenario.

(17) The doctor didn’t use new medicine, but he used older medicine for his patient instead because he knew that new medicine is less effective than older medicine. As a result, the patient has successfully recovered.

Under this scenario, (15) can be truthfully uttered, but (16) is rejected. This implies that $S_1-te_{LEX\ SUBJ}$ does not reside in scope of the negation attached to S_2 . Kato points out that, assuming that scope of negation does not extend over clause boundaries, this behavior of negation is predicted if $S_1-te_{LEX\ SUBJ}$ is not a constituent of S_2 but is coordinated with it. As for $S_1-te_{NULL\ SUBJ}$ like the one in (15), Kato suggests that it is adjoined to S_2 , and hence resides in the scope of negation attached to S_2 .

Based on these evidences, we conclude that whereas $S_1-te_{NULL\ SUBJ}$ can be interpreted as an adjunct, $S_1-te_{LEX\ SUBJ}$ is not an adjunct but a conjunct of a coordinate structure. The above observations constitute the NSG in (4).

3. The nature of the NSG

So far we have shown that the NSG stated in (4) is empirically correct. To understand the nature of the NSG, two aspects of *te*-clauses need to be investigated: their finiteness and categorial status.

3.1 Finiteness of *T*

Let us first take a close look at finiteness of *te*-clauses. We will show that S_1 - te_{NULL} SUBJ exhibits the diagnostic properties of obligatory control (OC). The first diagnostic property of OC we will examine has to do with the locality condition on the antecedent for the null subject in the adjunct *te*-clause. The null subject Δ in the adjunct *te*-clause requires a local antecedent, as shown below.

- (18) [_{S2} sono kyoodai_i-wa [_{S1} Δ_i otagai-o tasuke-aw-te] syukudai-o yatta].
 the brothers-TOP each.other-ACC help-RECIP-TE homework-ACC finished
 ‘[_{S2} The brothers_i, [_{S1} Δ_i helping each other], finished their homework].’
- (19) *sono kyoodai_i-wa [_{S2} Mary-ga [_{S1} Δ_i otagai-o tasuke-aw-te]
 the brothers-TOP Mary-NOM each.other-ACC help-RECIP-TE
 syukudai-o yatta]-to omotta.
 homework-ACC finished-C thought
 ‘The brothers_i thought that [_{S2} Mary, [_{S1} Δ_i helping each other], finished her homework].’

Otagai is a reciprocal pronoun, and *-aw* is a reciprocalizer which attaches to a verbal stem to make it a reciprocal verb. These elements are used here in order to force the null subject in the adjunct *te*-clause to be interpreted as plural, since they are incompatible with a singular subject, as the following pair illustrate².

- (20) a. sono kyoodai-wa otagai-o tasuke-aw-ta.
 the brothers-TOP each.other-ACC help-RECIP-PAST
 ‘The brothers helped each other.’
 b. *Mary-wa otagai-o tasuke-aw-ta.
 Mary-TOP each.other-ACC help-RECIP-PAST
 ‘Mary helped each other.’

In (18), where the plural subject *sono kyoodai* ‘the brothers’ is located in the clause immediately higher than the clause null subject Δ is located, the null subject in the *te*-clause can be bound by the matrix subject *sono kyoodai* ‘the brothers’. By contrast, the null subject cannot be bound by the matrix subject in (19), where another clause intervenes between the *te*-clause and the clause which the plural subject appears in. This patterns with adjunct OC sentences in English. In (21), for example, PRO in the adjunct clause cannot be bound by the matrix subject *John* and the reflexive lacks a local binder.

- (21) *John_i said in the bar [that Mary left after PRO_i dressing himself in the hotel].
 (cf. Hornstein 2003)

In addition, the antecedent for Δ in the adjunct *te*-clause must c-command it, which is another diagnostic property of OC sentences.

² This strategy to distinguish OC from non-obligatory control (NOC) by using *otagai* and *-aw* is based on Fujii (2006).

- (22) *<sub>[S₂ [[sono kyoodai-no] ane]-wa [<sub>S₁ Δ_i otagai-o tasuke-aw-te] syukudai-o
 the brothers-GEN sister-TOP each.other-ACC help-RECIP-TE homework-ACC
 yatta].
 finished
 ‘_{[S₂ [The sister of [the brothers]_i], [_{S₁ Δ_i helping each other], finished her homework].’}}</sub></sub>

In the ungrammatical example (22) the plural NP *sono kyoodai* ‘the brothers’ is embedded inside another NP, *ane* ‘sister,’ and therefore does not c-command the null subject in the *te*-clause. The sharp contrast between (22) and (18) above again suggests the relevance of OC PRO, since non-c-commanding antecedents for OC PRO are generally prohibited, as in (23).

- (23) *John_i’s sister appeared after PRO_i shaving himself.

(cf. Hornstein 2003)

Given these observations, it should make sense to argue that adjunct *te*-clauses are adjunct OC environments in Japanese³. That is, the null subject Δ in an adjunct *te*-clause is OC PRO, rather than *pro*, a Case-marked null pronoun. This is so because *pro*, contrary to OC PRO, can freely take long distance or non-c-commanding antecedents, just like overt pronouns can. For instance, the *pro* subject of the adjunct clause in (24) can be coreferential with the NP *sono kyoodai* ‘the brothers’, which does not c-command the subject of the adjunct clause.

- (24) sono kyoodai_i-no ane-wa [*pro*_i otagai-o tasuke-aw-ta kara]
 the brothers-GEN sister-TOP each.other-ACC help-RECIP-PAST because
 syukudai-o zibun-no peesu-de yatta.
 homework-ACC self-GEN pace-at finished
 ‘[The sister of [the brothers]_i] finished her homework at her own pace because they_i
 helped each other.’

The conclusion I would like to draw based on the OC diagnostics is that adjunct *te*-clauses are nonfinite, hence the occurrence of OC PRO⁴. As for a conjunct *te*-clause (i.e., *S₁-te_{LEX} SUBJ*), I argue that its T is finite, and the T licenses the nominative subject.

To sum up, adjunct and conjunct *te*-clauses differ from each other with respect to their finiteness: adjunct *te*-clauses contain nonfinite T, whereas conjunct ones do finite T.

³ The idea that adjunct OC exists in Japanese is not new at all. As noted in Perlmutter (1984), the adjunct clause headed by *-nagara* ‘while’ seems to be an adjunct OC environment in Japanese. In the example in (i) below the null subject in the *nagara*-clause can only be controlled by the matrix subject, just like adjunct control sentences in English such as (ii).

(i) [Δ sono koto-o kangae-nagara] watashi_i-wa Tanaka-san_j-ni denwasita.
 that thing-ACC think-while I-TOP -DAT telephoned
 ‘While Δ_{i/*j} thinking about that thing, I_i phoned Mr. Tanaka_j.’

(ii) John_i saw Mary_j after PRO_{i/*j} eating lunch.

(cf. Hornstein 2003)

⁴ Although I assume here that the existence of OC PRO implies nonfiniteness of the clause, this assumption may not be safe, given Landau’s (2000, 2004) argument that control into finite clauses is possible in languages like Hebrew, and PRO actually bears regular structural Case, just like overt DP.

3.2 Categorical status of S_1 -*te*

In this subsection we will argue that S_1 -*te* is always categorially TP, irrespective of its finiteness. A comprehensive analysis of *-te* proposed by Nakatani (2004) is that it is T whose pronunciation is regulated by an elsewhere rule such as (25), which is exemplified by (26)⁵.

(25) T-pronunciation rule: T is pronounced *-ta* (past) or *-ru* (pres) if it is immediately followed by C, and *-te* otherwise.

(26) *-te* is excluded before C:

- a. [_{CP} John-ga piza-o tabe {-ru/ -ta/ *-te} yo].
 John-NOM pizza-ACC eat -PRES -PAST TE C
 ‘John eats/ate pizza.’
- b. [_{CP} John-ga piza-o tabe {-ru/ -ta/ *-te} to] omou.
 John-NOM pizza-ACC eat -PRES -PAST TE C think
 ‘I think that John eats/ate pizza.’

In (26a), both the present and the past tense morpheme *-ru* (pres) and *-ta* (past) are ruled in, but *-te* is not before the matrix C. The same effect is observed in the embedded clause as well, as in (26b), where only *-te* among the three is disallowed in the position which immediately precedes the complementizer *-to*. The T-pronunciation rule in (25) correctly captures this distribution of *-te*. If this elsewhere rule is correct, we predict that both adjunct and conjunct *te*-clauses, which we identify above to be nonfinite and finite, respectively, cannot be CPs by themselves but TPs. The presence of *-te* should indicate the absence of local C, since if local C were present, immediately following T in the *te*-clause, the elsewhere rule in (25) would dictate that T in the *te*-clause be spelled out as either *-ru* (pres) or *-ta* (past). One might, however, argue the adoption of the rule in (25) which treats *-te* as an allomorph of T is hasty. Here I would like to show that clausal conjuncts ending with *-te* behave differently from those ending with *-ru* (pres) or *-ta* (past) with respect to the interrogative C that occurs sentence-finally, and suggest that the adoption of the T-pronunciation rule in (25) is well motivated.

When an interrogative C attaches to S_2 , the C always scopes over S_1 -*te*. Let us consider the example in (27).

- (27) [_{S1} isya-ga kono kusuri-o tukaw-te] [_{S2} kanzya-ga naotta]-no?
 doctor-NOM this medicine-ACC use-TE patient-NOM recovered-Q
 ✓ ‘Is it true that the doctor used this medicine and the patient recovered?’
 * ‘The doctor used this medicine. Did the patient recover then?’

(27) does not yield an interpretation where the conjunct S_1 -*te* is declarative, and the *te*-clause must be questioned as well as S_2 . This behavior of the sentence-final interrogative C in (27) is totally different from that of (28) below, where the past tense morpheme *-ta* occurs in the first clausal conjunct instead of *-te*.

⁵ Nakatani’s (2004) original analysis of *-te* is the following.

(i) T[+past] in Japanese realizes as *-ta* when governed by C, and as *-te* otherwise.

- (28) [isya-ga kono kusuri-o tukaw-**ta**] kedo/ga [kanzya-ga naotta]-no?
 doctor-NOM this medicine-ACC use-PAST but patient-NOM recovered-Q
 * ‘Is it true that the doctor used this medicine and the patient recovered?’
 ✓ ‘The doctor used this medicine but did the patient recover?’

Contrary to (27), the first clausal conjunct cannot be questioned by the sentence-final Q. The fact that a conjunct *te*-clause in (27) must be interpreted under the scope of the interrogative C attached to S₂ suggests that it is categorially TP and is coordinated to the main clause TP, as schematically illustrated with English words in (29) (linear order is irrelevant here).

- (29) [_{CP} [[_{TP} the doctor used this medicine-*te*] & [_{TP} the patient recovered]]] C_[+Q]

In (29) the interrogative C located in the sentence-final position c-commands the *te*-clause. If this structure is correct for (27), the available and unavailable interpretations in (27) are predicted. On the other hand, since the first conjunct in (30) cannot be interpreted under the scope of the sentence-final Q, it must be the case that the first conjunct is CP, being coordinated with the main clause CP, as in (30) below.

- (30) [[_{CP} the doctor used this medicine] & [_{CP} the patient recovered C_[+Q]]]

The interrogative C in (30) does not c-command the first conjunct, and the absence of the interpretation where the first conjunct is questioned in (28) should naturally follow. Now, if the *te*-clause in (27) is actually CP, and is coordinated with CP, the simplified structure would look like (31).

- (31) [[_{CP} the doctor used this medicine-*te*] & [_{CP} the patient recovered C_[+Q]]]

In (31) the interrogative C does not c-command the *te*-clause, and hence (30) wrongly predicts that S₁-*te* in (27) resides outside of its scope. (27) thus provides an evidence that a *te*-clause is categorially TP.

The data concerning *wh* in-situ points toward the same point. The generalization commonly assumed since Harada (1972) is that *wh*-phrases must be c-commanded by Q-particles such as *ka* and *no*. For instance, in (32a) the *wh*-phrase *dare-o* contained in the embedded clause is c-commanded by the embedded Q-particle *ka*, satisfying the c-command requirement. By contrast, in the ungrammatical example (32b), the *wh*-phrase *dare-ga*, which originates in the matrix clause, is not c-commanded by the embedded Q-particle, violating the c-command requirement on *wh*-phrases in Japanese.

- (32) a. Mary-ga [John-ga **dare-o** tataita **ka**] sitteiru.
 Mary-NOM John-NOM who-ACC hit Q know
 ‘Mary knows who John hit.’
 b. ***dare-ga** [John-ga Tom-o tataita **ka**] sitteiru.
 who-NOM John-NOM Tom-ACC hit Q know
 ‘Who knows whether John hit Tom?’

On the other hand, (33a) and (33b) below do not contrast with each other with respect to licensing of *wh* in-situ. This is so because in (33) the Q-particle *no* is located in the matrix C, a position which c-commands the embedded clause as well as the matrix subject.

- (33) a. Mary-ga [John-ga **dare-o** tataita to] itta **no**?
 Mary-NOM John-NOM who-ACC hit C said Q
 ‘Who did Mary say that John hit?’
 b. **dare-ga** [John-ga Tom-o tataita to] itta **no**?
 who-NOM John-NOM Tom-ACC hit C said Q
 ‘Who said that John hit Tom?’

With this background in mind, let us turn to *wh* in-situ in S_1 -*te*. *Wh* in-situ in S_1 -*te* can be licensed by the Q-particle attached to S_2 , while *wh* in-situ in the first clausal conjunct ending with *-ta* ‘past’ cannot be licensed by Q attached to the second conjunct.

- (34) [S_1 isya-ga **nani-o** tukaw-te] [S_2 kanzya-ga naotta]-**no**?
 doctor-NOM what-ACC use-TE patient-NOM recovered-Q
 ‘What did the doctor use and the patient recovered?’
 (35) *[isya-ga **nani-o** tukaw-ta] kedo/ga [kanzya-ga naotta]-**no**?
 doctor-NOM what-ACC use-PAST but patient-NOM recovered-Q
 ‘What did the doctor use but the patient recovered?’

That the *wh* in-situ in (34) is licensed unambiguously by the Q-particle attached to S_2 can be confirmed by the following ungrammatical example in (36), which minimally differs from (34).

- (36) *[S_1 isya-ga **nani-o** tukaw-te] [S_2 kanzya-ga naotta].
 doctor-NOM what-ACC use-TE patient-NOM recovered
 (Intended:) ‘What did the doctor use and the patient recovered?’

Again, the data concerning *wh* in-situ suggests that a conjunct *te*-clause does not project up to CP but is TP, and it is coordinated with the main clause TP. In the simplified structure in (37) below, the *wh*-phrase contained in the *te*-clause is c-commanded by the matrix interrogative C. The *wh* in-situ in (37) can be successfully licensed due to the presence of the c-commanding Q, which is a correct prediction.

- (37) [CP [[TP the doctor used **what-te**] & [TP the patient recovered]]] $C_{[+Q]}$

Although these observations are based on conjunct *te*-clauses only, I believe that they are sufficient enough to confirm the empirical adequacy of the T-pronunciation rule stated in (25). Assuming that the elsewhere rule in (25) is empirically correct, it is reasonable to conclude that T in adjunct *te*-clauses, which we identify to be nonfinite in the last subsection, is governed by the rule in (25) as well as T in conjunct *te*-clauses. We conclude that both adjunct (=nonfinite) and conjunct (=finite) *te*-clauses are categorially TP.

3.3 The nature of the NSG: a structural restriction on finite TP

Let us briefly summarize the observations presented so far. In section 3.1, we have seen that adjunct *te*-clauses are OC environments, and concluded that adjunct *te*-clauses are nonfinite, whereas conjunct ones are finite, giving rise to nominative subjects. In section 3.2, we have

concluded that neither adjunct nor conjunct *te*-clauses project up to CP, but they do up to TP. Given this conclusion, the NSG in (4), repeated below for the sake of convenience, now can be restated as a restriction on finite TPs headed by *-te*, as schematically represented in (38).

(4) **Nominative Subject Generalization (NSG):** *Te*-clauses must be interpreted as clausal conjuncts, rather than adverbial adjuncts, if they have lexical nominative subjects.

- (38) a. [TP ... [Adjunct TP PRO ... *-te*_[-fin]] ... T_[+fin]] C Adjunct nonfinite *te*-clause
 b. [CP [TP Lexical Subject ... *-te*_[+fin]] & [TP ... T_[+fin]] C] Conjunct finite *te*-clause
 c. *[TP ... [Adjunct TP Lexical Subject ... *-te*_[+fin]] ... T_[+fin]] C *Adjunct finite *te*-clause

(38a) represents cases of S_1 -*te*_{NULL SUBJ} which is nonfinite, where clefting of *te*-clauses is permitted. (38b) is an instance of S_1 -*te*_{LEX SUBJ} which is finite. For example, the asymmetry in cleft formation between (9) and (10), repeated below, can be captured by (38a-b).

- (9) [S₂ isya-ga t_i kanzya-o naosita]-no-wa [S₁ Δ kono kusuri-o tukaw-te]_I
 doctor-NOM patient-ACC cured-C-TOP this medicine-ACC use-TE
 da.

COP

'It is [S₁ by Δ using this medicine]_i that the doctor cured the patient t_i.'

- (10) * t_i [S₂ kanzya-ga naotta]-no-wa [S₁ isya-ga kono kusuri-o tukaw-te]_i
 patient-NOM recovered-C-TOP doctor-NOM this medicine-ACC use-TE
 da.

COP

'It is [S₁ the doctor used this medicine]_i that the patient recovered t_i.'

(38c) illustrates non-attested cases of S_1 -*te*_{LEX SUBJ} which is finite, where S_1 -*te*_{LEX SUBJ}, being an adjunct, is expected to be able to undergo movement. This is clearly not the case.

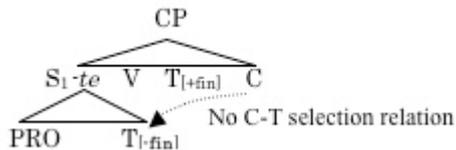
4. Explaining the NSG

In the last section we have seen that the NSG is a restriction which prohibits finite TP from being an adjunct. Now, the question to be addressed is this: why does the NSG in (4) hold? More precisely, why can a finite *te*-clause with a nominative subject not undergo adjunction, as in (38c)? Authors such as Kato (1985) and Uchimaru (2006) independently have shown that some *te*-clauses are adjuncts while others are conjuncts, but no explanation has been offered in the literature as to why some *te*-clauses cannot undergo adjunction but must undergo coordination, to my knowledge. My answer for the relevant question here is that Chomsky's (2000) proposal that finite T must be selected by C straightforwardly derives the NSG.

Chomsky (2000) proposes that nominative Case feature born by T is not inherent to T itself, but rather T obtains the feature [NOM] by virtue of subcategorization. Namely, according to this proposal, T cannot bear [NOM] feature unless it is selected by C. If T is not selected by C in a derivation, T would not bear [NOM] feature, tense feature or person feature, and would become nonfinite. To put it differently, if nominative Case marking is available in a clause, C should exist locally in the structure.

Let us see how Chomsky's (2000) conception of the C-T dependency derives the NSG. As we have seen in the previous sections, the NSG we have established is a restriction on the finite TP headed by *-te*. Now it is clear why (38a) is ruled in. When S_1-te undergoes adjunction, T in S_1-te cannot be selected by the matrix C (which selects the matrix T) and therefore cannot be finite, giving rise to OC PRO. There is no chance for a nominative subject to surface in adjunct *te*-clauses. This is illustrated in (39) below.

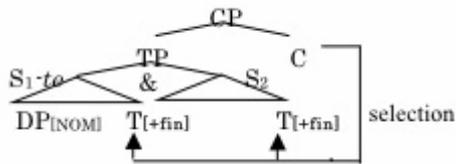
(39) adjunct *te*-clauses ($S_1-te_{NULL\ SUBJ}$):



It should be noted here that the present analysis treats (OC) PRO as an A-trace (Hornstein 1999, 2003), rather than treating PRO as bearing Null Case (Martin 1996). We depart from Chomsky (2000) in this respect⁶.

(38b) receives the straightforward account as well. When the *te*-clause is coordinated with a TP, the T in S_1-te (as well as the T in S_2) can be selected by the matrix C and hence can be finite, making nominative subjects in S_1-te available, as the tree diagram in (40) below shows.

(40) conjunct *te*-clauses ($S_1-te_{LEX\ SUBJ}$):



Let us turn to (38c), a non-attested case. The conception of the C-T dependency adopted here simply does not derive the pattern illustrated in (38c), where S_1-te contains a nominative subject and serves as an adjunct. This is so because, as we have already seen in (39), once S_1-te adjoins to the root syntactic tree, T in S_1-te can never be subcategorized by the matrix C, by definition. This necessarily implies that T in the *te*-clause is nonfinite, being unselected, and therefore nominative case marking on the subject in S_1-te is unavailable.

The proposal that nominative Case checking/assignment by T is crucially dependent on the presence of C thus straightforwardly derives the NSG. By contrast, if it is possible that T can be finite and check Case feature of the subject independently of C, it would be hard to see why the NSG holds and a finite *te*-clause that has a nominative subject cannot undergo adjunction, despite the fact that many languages including Japanese allow adjunct clauses to have a nominative subject.

⁶ Here Hornstein's argument that PRO is not an independent grammatical formative but is an A-trace (or a deleted copy) created by movement of an antecedent is adopted because OC PRO does not seem to be expected to be found in adjunct *te*-clauses under Chomsky's (2000) treatment of PRO. Chomsky (2000) assumes PRO checks null Case feature on control nonfinite T, and this null Case feature is absent on control nonfinite T unless it is selected by C, just like nominative Case feature is absent on T unless it is selected by C. Since adjunct *te*-clauses are argued to be TPs here and their heads, namely Ts, remain unselected throughout the derivation, Chomsky's (2000) analysis of PRO seems to wrongly predict that adjunct *te*-clauses do not tolerate PRO, contrary to fact.

- (41) John left [ADJUNCT because/after **the woman** ordered pizza].
- (42) John-wa [ADJUNCT **sono zyosei-ga** piza-o tanonda kara/ato] kaetta.
 John-TOP that woman-NOM pizza-ACC ordered because/after left.
 ‘John left because/after the woman ordered pizza.’

5. Remarks on *pro* in *te*-clauses

We have shown in the previous section that null subject in an adjunct *te*-clause is OC PRO, rather than *pro*, given the characteristic properties of OC such as the ban on long distance antecedents. One thing I would like to mention here is that *not* all instances of *te*-clauses with null subjects (S_1 - $te_{NULL\ SUBJ}$) involve OC PRO, although I have argued that the null subject in an adjunct *te*-clause is OC PRO (or an A-trace under the movement theory of control advocated by Hornstein (1999) and many others). More specifically, there seem to exist many cases where a null subject in a *te*-clause is not controlled by the subject of S_2 . The short dialogue in (43) illustrates such an example.

- (43) A: Yamada-sensei-wa hontooni nessinni hatarai-teiru ne.
 Yamada-doctor-TOP really hard work-PROG SFP
 ‘Dr. Yamada has been working really hard, hasn’t he?’

B: Ee, hontooni.

yes really

- [S_1 Δ kono kusuri-o kaihatu-nasar-te]
 this medicine-ACC invent-HON-TE
 [S_2 boku-no imooto-ga naor-ta] ndesu.
 I-GEN sister-NOM recover-PAST COP

‘Yes, he really has. [S_1 Δ invented this medicine] and [S_2 my sister recovered].’

What is important for our current purpose is that in B’s utterance in (43), which sounds perfect, the null subject in the *te*-clause does not seem to be controlled by the subject of S_2 *boku-no imooto* ‘my sister’. This can be confirmed by the presence of the honorific suffix *-nasar* attached to the verbal stem in S_1 -*te*, which is compatible only with a socially superior person to the speaker (cf. Harada 1976). So the honorific morphology prevents Δ from being coindexed with the NP *boku-no imooto*, which is not socially superior. Indeed, a socially superior person such as *Yamada-sensei* ‘Dr. Yamada’, can trigger the honorific morphology on the predicate, but *boku-no imooto* ‘my sister’ cannot. So whereas (44) is okay, (45) sounds weird.

- (44) Yamada-sensei-ga kono kusuri-o kaihatu-nasar-ta.
 Yamada-doctor-NOM this medicine-ACC invent-HON-PAST
 ‘Dr. Yamada invented this medicine.’

- (45) #Boku-no imooto-ga kono kusuri-o kaihatu-nasar-ta.
 I-GEN sister-NOM this medicine-ACC invent-HON-PAST
 ‘My sister invented this medicine.’

Given that B's utterance in (43) does not show such awkwardness as (45) does, it is reasonable to say that the null subject in S_1 -*te* is not controlled by the subject of S_2 , but simply coreferential with *Yamada-sensei* 'Dr. Yamada', which has been previously mentioned in the discourse. This observation suggests that Δ in the *te*-clause in (43) is not OC PRO but *pro*, a Case-marked null pronoun, since OC PRO is generally considered to require a syntactic antecedent, not an antecedent in the discourse. Our analysis then predicts that if it is a Case-marked pronoun, T in the *te*-clause must be finite, and hence involve a structure of coordination, rather than adjunction. This prediction seems to be borne out. The following cleft construction sounds bad, suggesting a violation of the CSC.

- (46) * [t_i [S_2 boku-no imooto-ga naor-ta]]-no-wa [S_1 Δ kono kusuri-o
 I-GEN sister-NOM recover-PAST-TOP this medicine-ACC
 kahatu-nasar-te] $_i$ da.
 invent-HON-TE COP
 (Lit.) 'It is [S_1 Δ invented this medicine] $_i$ that t_i and [S_2 my sister recovered].'

Negation attached to S_2 does not scope over S_1 -*te*, which is another diagnostic property of coordination structures.

- (47) [S_1 Δ atarasii kusuri-o kaihatu-nasar-te] [S_2 boku-no imooto-ga naor-**anaka**r-ta].
 new medicine-ACC invent-HON-TE I-GEN sister-NOM recover-NEG-PAST
 * 'It is not the case that Δ invented new medicine and my sister recovered.' $\neg(S_1 \& S_2)$
 ✓ ' Δ invented new medicine and it is not the case that my sister recovered.' $(S_1 \& \neg S_2)$

To confirm this, suppose the following scenario given in (48).

- (48) Dr. Yamada gave up his research project to invent new medicine a while ago, so he didn't invent new medicine. Although the sister of the speaker couldn't benefit from new medicine, she recovered without any help of medicine.

Under this scenario, (47) cannot be truthfully uttered as a reply to the speaker A in (49).

- (49) A: Yamada-sensei-wa saikin doo siteimasu ka?
 Yamada-doctor-TOP these.days how doing Q
 'How is Dr. Yamada doing these days?'
 B: # [S_1 Δ atarasii kusuri-o kaihatu-nasar-te] [S_2 boku-no imooto-ga naor-**anaka**r-ta].

If (47) yields the interpretation ' $\neg(S_1 \& S_2)$ ', it should truth-conditionally be possible to utter (47) under the context in (48), since (47) as a whole would be true unless S_1 and S_2 are simultaneously true, according to ' $\neg(S_1 \& S_2)$ '.

To sum up, there exist cases of S_1 - $te_{\text{NULL SUBJ}}$ which do not contain OC PRO. I have shown that such *te*-clauses have *pro* subjects instead, and they involve coordination. This is actually what is expected under Chomsky's (2000) conception of the C-T dependency. In order to have *pro* in the subject position, a *te*-clause must be finite, since by definition *pro* is Case-marked. And in order to be finite, a *te*-clause has to undergo coordination with TP. This is so because if it undergoes adjunction, T in the *te*-clause would remain unselected, and as a consequence the Case feature on *pro* would remain unvalued. The derivation would subsequently crash at the interface for a familiar reason.

6. Summary and remaining issues

This paper has attempted to give empirical support for Chomsky's (2000) conception of the C-T relation that T is nonfinite unless selected by C, based on Japanese *te*-clauses. A *te*-clause with a nominative subject, either overt or null, cannot adjoin to the root syntactic tree because adjunction leaves T in the *te*-clause unselected by C, and the clause would become nonfinite. The unvalued Case feature on the subject DP in the *te*-clause would cause a derivation to crash at the interface, unless the *te*-clause undergoes coordination with TP.

Remaining issues to be addressed are the following. The first has to do with the more recent model of the C-T relation called 'feature inheritance', according to which C, being a phase head, is the locus of Agree features and T inherits them (Chomsky 2008). If the C-T dependency is to be understood in terms of feature inheritance, our analysis presented here would amount to claiming that feature inheritance from one C head to two independent T heads is possible when a coordination structure is involved, which clearly needs an independent support. The second issue is about the structure of coordination in syntax. Although I have tacitly adopted the "flat" structure analysis of coordination without providing an argument for it, I am not much sure whether the analysis in this paper is equally compatible with asymmetrical coordination structures involving &P as a complement of C (cf. Munn 1993). Further research is required.

Acknowledgements

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A theta-theoretic account of the distribution of sentential complements

The case of Russian *čto*-clauses

Mikhail Knyazev

In this paper I show that thematic structure alternations (agentive/nonagentive subject alternation and animate/inanimate object alternation) affect realization of a sentential complement. I present a theta-theoretic account of these effects based on Reinhart's (2002) Theta system and its extensions proposed by Marelj (2004). The main intuition behind the proposed account is that a sentential complement is blocked whenever it is thematically indistinguishable from any of its co-arguments.

1. Introduction

Since Pesetsky's (1982) seminal discussion, it has been largely assumed that the distribution of sentential complements is governed by s(ematic)-selection, that is, sentential complements are expected to occur wherever they satisfy semantic requirements imposed by the matrix predicate. In this paper I show that the distribution of sentential complements (*čto*-clauses) in Russian is sensitive to the overall thematic structure of the matrix predicate, including the thematic properties of its co-arguments.

It is crucial to show that the effect of the thematic structure of a predicate on the realization of a CP complement is independent from the choice of a lexical entry so that a lexical selection approach cannot be invoked to account for the data. Consequently, I will be focusing on cases of variability of argument structure found within one and the same lexical entry.

Consider the following example. Russian verb *grozit'* 'threaten' in its agentive use can take both a CP complement and a DP marked with instrumental case, as in (1a), but it can only take the latter kind of complement in its nonagentive use, as in (1b). Given that a CP is compatible with the thematic role that it is supposed to receive in (1b) its unacceptability would appear mysterious under an s-selection account.

- (1) a. Nom_{AG} *threaten* $\text{DP}_{\text{INS}}/\text{CP}$
b. $\text{Nom}_{\text{NONAG}}$ *threaten* $\text{DP}_{\text{INS}}/*\text{CP}$

In this paper I provide an account of this and other similar cases based on Reinhart's (2002) Theta system and its extensions proposed by Marelj (2004). The choice of the framework is not necessitated by the data that I will be discussing but is partly explained by the fact that the

Theta system provides a simple and elegant way to formulate the generalizations that are needed to account for these data.

The aim of the paper is two-fold. The first goal is empirical and it is to present the data on the distribution of sentential complements and to show their sensitivity to thematic structure of the predicate and their interaction with argument structure alternations. The second goal is theoretical and it is to explore to what extent this complex array of data can be handled within the Theta system framework. Thus the paper is partly an exercise in the Theta system.

The paper is organized as follows. In section 2 I present the main empirical data showing how thematic structure alternations affect the realization of CP complements. In section 2.1 I introduce the role splitting construction, which will be important for understanding the argument structure alternations to follow. I discuss agentive/nonagentive subject alternation in section 2.2, focusing on verbs *pugat* ‘frighten’ and *grozit* ‘threaten’, and animate/inanimate object alternation in section 2.3, focusing on verbs *zlitsja* ‘be angry’ and *rugat* ‘criticize’. In section 3 I present an account of these data in terms of the Theta system. In section 3.1 I give a brief introduction of the Theta system. I discuss agentive/nonagentive subject alternation in section 3.2 and animate/inanimate object alternation in section 3.3. In section 4 I discuss some further predictions of the proposed account. Section 5 concludes the paper.

2. The data

2.1 The role splitting construction

Before we turn to the actual data, I would like to introduce the role splitting construction, which will be important for understanding argument structure alternations to be discussed below.

Paducheva (2004) argues that several Russian psych verbs and speech act verbs display a particular alternation, in which a possessive noun phrase occupying an argument position is split into two independent constituents. Paducheva discusses two kinds of split – subject and object split. Subject split is very productive and is observed with a wide variety of object experiencer verbs, including *udivit* ‘surprise’, *poražat* ‘startle’, *obidet* ‘offend’ and many others. It is illustrated with verb *nadoest* ‘annoy’ in (2). In (2a) the subject position of the verb is occupied by the noun phrase headed by ‘complaints’ accompanied by genitive possessor ‘this woman’. In (2b) the possessor becomes the nominative subject while the head noun, accompanied by the possessive pronoun, is realized as an instrumental DP. In view of the fact that the split constituents correspond to the same underlying thematic role, I will call the process deriving (2b) from (2a) role splitting and the construction in (2b) the role splitting construction.

- (2) a. [Žaloby ètoj ženščiny] mne nadoeli.
 Complaints.NOM this woman.GEN me.DAT annoyed
 ‘Complaints of this woman annoyed me.’
 b. [Èta ženščina] nadoela mne [svoimi žalobami].
 This woman.NOM annoyed me.DAT her complaints.INS
 ‘This woman annoyed me with her complaints.’

According to Paducheva (2004), object split, unlike subject split, is observed only with a few psych verbs such as *razozlit’sja* ‘get angry’ and *obidet’sja* ‘to be offended’. The latter is illustrated in (3). In (3a) the possessive noun phrase ‘John’s article’ is realized as a PP

complement headed by *na* ‘at’ and interpreted as a target of emotion. In (3b) the target of emotion is split between a *na*-PP, realizing the possessor of the target, and a PP headed by *za* ‘for’, realizing the head of the target accompanied by a possessive pronoun.

- (3) a. Ja obidelsja [na stat’ju Ivana].
 I.NOM got offended at article.ACC John.GEN
 ‘I got offended by John’s article.’
 b. Ja obidelsja [na Ivana] [za ego stat’ju].
 I.NOM got offended at John.ACC for his article.ACC
 ‘I got offended at John for his article.’

Paduceva observes that object split is more common with speech act verbs such as *osudit’* ‘blame’ giving examples in (4). In (4a) the possessum ‘light-minded promises’ followed by the possessor ‘Belusconi’ is realized as a direct object. In (4b) the direct object position is occupied by the possessor while possessum is realized as a PP headed by *za* ‘for’, just like in (3b). Other speech act verbs that can participate in this construction but not cited by Paduceva include *rugat’* ‘criticize’ and *xvalit’* ‘praise’. Object split described above is also observed with verbs such as *smejat’sja (nad)* ‘laugh (at)’ and *izdevat’sja (nad)* ‘mock (at)’, which are hard to classify as either psych or speech act verbs.

- (4) a. On osudil [legkomyslennye obeščanija Beluskoni].
 he.NOM blamed light-minded promises.ACC Berlusconi.GEN
 ‘He blamed light-minded promises by Berlusconi.’
 b. On osudil [Beluskoni] [za legkomyslennye obeščanija].
 he.NOM blamed Berlusconi.ACC for light-minded promises.ACC
 ‘He blamed Berlusconi for light-minded promises.’

Paduceva only discusses role splitting involving nominal complements and not sentential complements although the latter can also participate in it. It is the interaction between role splitting and realization of sentential complements that will be the focus of the subsequent sections.

2.2. Agentive/nonagentive subject alternation

Now that role splitting has been introduced, we can turn to the first alternation, which is agentive/nonagentive subject alternation. I will discuss *pugat’* ‘frighten’ first and then *grozit’* ‘threaten’.

In its basic use, object experiencer verb *pugat’* ‘frighten’ appears in an argument structure with a nominative stimulus and an accusative experiencer, as we see in (5a). In (5b) the stimulus is split between a nominative possessor and an instrumental possessum.

- (5) a. Bezljud’je goroda pugalo mal’čika.
 absence.of.people.NOM town.GEN frightened boy.ACC
 ‘Absence of people in town frightened the boy.’
 b. Gorod pugal mal’čika svoim bezljud’jem.
 town.NOM frightened boy.ACC its absence.of.people.INS
 lit.: ‘The town frightened the boy with the absence of people in it.’

The fact that (5b) is indeed an instance of the role splitting construction rather than an independent argument structure is shown by the impossibility to have an instrumental DP that is not in the possessive relation with the nominative subject. Hence (6) is deviant except for the unlikely interpretation where the helplessness is attributed to the town rather than to the boy.¹

- (6) *? Bezljudnyj gorod pugal mal'čika bespomoščnost'ju pered
 abandoned town.NOM frightened boy.ACC helplessness.INS in front
 licom opasnosti.
 face.INS danger.GEN
 intended: 'The abandoned town frightened the boy with his helplessness in the face
 of danger.'

Now let's consider the realization of a sentential complement. As can be seen in (7a), a *čto*-clause cannot realize the possessum in the split construction, even though it can realize the stimulus in the construction with no split, as in (7b).^{2 3} Importantly, the unacceptability of (7a) is not due to semantic reasons since when the *čto*-clause is supported by the correlative pronoun *to* 'that' (glossed as 'it' for convenience) marked with instrumental case, it can realize the possessum, as can be seen in (7c). The correlative-CP structure in (7c) cannot form a possessive DP with the subject but it can (and in fact must) be interpreted as a property possessed by the subject.⁴ This suggests that the possessive relation holding between the split constituents is a semantic rather than syntactic requirement.

- (7) a. * Gorod pugal mal'čika, čto v nem net ljud'ej.
 town.NOM frightened boy.ACC that in him.LOC no people.GEN
 intended: 'The town frightened the boy with the fact that there were no people in
 it.'
- b. Mal'čika pugalo, čto v gorode net ljud'ej.
 boy.ACC frightened that in town.LOC no people.GEN
 'It frightened the boy that there were no people in town.'
- c. Gorod pugal mal'čika tem, čto v nem net ljud'ej.
 town.NOM frightened boy.ACC it.INS that in him.LOC no people.GEN
 lit.: 'The town frightened the boy with the fact that there were no people in it.'

Note that a *čto*-clause cannot realize the possessor in the split construction either, as shown in (8a), but this seems to be a restriction of a different nature since, as demonstrated in (8b), the insertion of the correlative pronoun does not significantly improve the sentence.⁵ I don't have

¹ I am grateful to the anonymous reviewer for making this point.

² In Russian, in contrast to English, *čto*-clauses have to obligatorily extrapose. So the position of the complement clause in (7b) does not match that of the nominative argument in (5a).

³ This restriction is reminiscent of the unacceptability of having a *that*-clause in examples like (i) noted by Pesetsky (1995:329).

(i) * Sue amused me that she has memorized the poem.

⁴ Landau (2011) argues that clauses do not form natural predicates but can be used predicatively when they contain a pronominal copy (of their potential subject) bound by the null operator, as, for example, in proleptic construction in (i). Since the complement clause in (7a) contains the copy, the complement can potentially be used as a predicate.

(i) We heard of Rina that the strike has ended *(thanks to her). (Landau 2011:808)

⁵ I am grateful to the anonymous reviewer for bringing these cases to my attention.

an account of these facts but I suspect that examples in (8) are bad because for some reason no possessive relation can be established between the two split constituents.

- (8) a. * Mal'čika pugalo, što v gorode net ljud'ej, tem, što
 boy.ACC frightened that in town.LOC no people.GEN it.INS that
 èto napominalo jadernuju katastrofu.
 this.NOM resembled nuclear disaster.ACC
 intended: 'That there were no people in town frightened the boy with the fact that
 this resembled a nuclear disaster.'
- b. *? Mal'čika pugalo to, što v gorode net ljud'ej, tem, što
 boy.ACC frightened it.NOM that in town.LOC no people.GEN it.INS that
 èto napominalo jadernuju katastrofu.
 this.NOM resembled nuclear disaster.ACC
 intended: 'That there were no people in town frightened the boy with the fact that
 this resembled a nuclear disaster.'

I showed above that the possessum in the possessive split construction cannot be realized as a *što*-clause. Since the possessum in this construction is realized as an instrumental DP, we might wonder whether the restriction has to do with the general inability of a *što*-clause to replace an instrumental DP. It appears that in certain cases *što*-clauses can in fact replace instrumental DPs. I will turn now to these cases.

It is well known that many object experiencer verbs display agentive/nonagentive ambiguity (see Landau 2010, among many others). For example, the verb *pugat'* 'frighten', which we already saw, takes an inanimate and hence nonagentive subject in examples like (5). However, it can also take an agentive subject. Thus, (9a) is in principle ambiguous but can be disambiguated by adding the agent-oriented adverb 'deliberately'. In its agentive use, the verb can also take an instrumental phrase, as in (9b). The instrumental phrase in (9b) is also ambiguous between two interpretations. On interpretation (9bi) it is interpreted as an instrument (modifier of manner). On interpretation (9bii), the whole sentence gets an interpretation of a speech act whereby the instrumental phrase is interpreted as the content of the speech act.⁶ Note that examples like (9b) even without 'deliberately' are necessarily agentive, which is shown by the impossibility of a nonagentive subject in (9c).

- (9) a. Oni (special'no) pugajut potrebitelej.
 they.NOM deliberately frighten clients.ACC
 'They (deliberately) frighten him.'
- b. Oni (special'no) pugajut potrebitelej povyšeniem cen.
 they.NOM deliberately frighten clients.ACC increase.INS prices.GEN
 lit.: 'They (deliberately) frighten clients with an increase in prices.'
 (i) 'They (deliberately) frighten clients by raising prices.' (instrument)
 (ii) 'They (deliberately) frighten clients by saying that they will raise prices.'
 (speech act)

⁶ Landau (2010) observes that in English instrumental phrases of object experiencer verbs can force a speech act interpretation, as, for example, in (ia), which can be paraphrased as in (ib).

(i) a. Mary bores John with her life as a linguist.

b. Mary is talking to John on and on about her life as a linguist.

- c. * Stat'ja v gazete / vvedenie pošlin pugaet
 article.NOM in newspaper.LOC introduction.NOM tariffs.GEN frightens
 potrebitelej povyšeniem cen.
 clients.ACC increase.INS prices.GEN
 intended: 'The article in the newspaper/introduction of tariffs frightens clients
 with an increase in car prices.'

The two interpretations of (9b) correspond to two different sentences with a correlative pronoun in instrumental case followed by a *čto*-clause. The instrument interpretation in (9bi) is rendered by the present tense of the embedded verb in (10a), whereas the speech act interpretation in (9bii) is rendered by the future tense of the main verb in (10b).

- (10) a. Oni (special'no) pugajut potrebitelej, tem čto povyšajut .
 they.NOM deliberately frighten clients.ACC it.INS that increase
 ceny
 prices.ACC
 'They (deliberately) frighten clients by raising prices.' (instrument)
- b. Oni (special'no) pugajut potrebitelej, tem čto povysjat
 they.NOM deliberately frighten clients.ACC it.INS that will increase
 ceny.
 prices.ACC
 'They (deliberately) frighten clients with the fact that they will raise prices.' (speech
 act)

When we consider realization of a bare *čto*-clause, we see the difference between the two interpretations. On the instrument interpretation in (10a), the instrumental argument cannot be substituted by a *čto*-clause, as can be seen in (11a), whereas on the speech act interpretation in (10b), a *čto*-clause can substitute the instrumental argument, as shown in (11b).⁷

- (11) a. * Oni pugajut potrebitelej, čto povyšajut ceny.
 they.NOM frighten clients.ACC that increase prices.ACC
 intended: 'They frighten clients by raising prices.' (instrument)
- b. ? Oni (special'no) pugajut potrebitelej, čto povysjat ceny.
 they.NOM deliberately frighten clients.ACC that will increase prices.ACC
 'They (deliberately) frighten clients that they will raise prices.'
 'They (deliberately) frighten clients with the fact that they will raise prices.'
 (speech act)

⁷ Whereas the modifier of manner interpretation for the instrumental phrase is available for virtually any object experiencer verb that permits agentive use, the speech act interpretation is lexically restricted to just a few object experiencer verbs that permit agentive use, another example being *obradovat'* 'please'. Example from the Russian National Corpus is given in (ia), see also (ib).

- (i) a. Locman obradoval nas, tem, čto k pričalu my ne pojdem.
 pilot.NOM gladdened us.ACC it.INS that to quay.DAT we.NOM not go
 'The pilot gladdened us by saying that we were not going to moor.'
- b. ? Locman obradoval nas, čto k pričalu my ne pojdem.
 pilot.NOM gladdened us.ACC that to quay.DAT we.NOM not go
 'The pilot gladdened us by saying that we were not going to moor.'

Examples like (11b) are slightly marginal but they nonetheless can be found naturally-occurring.⁸ Consider, for example, sentences in (12) from the Russian National Corpus (henceforth RNC).

- (12) a. Junoša pugal khana, što russkij vovoda mozet vnezapno
youth.NOM frightened khan.ACC that Russian general.NOM can suddenly
napast' na nego.
attack on him.ACC
'The youth frightened the khan with the fact that the Russian general can attack him
suddenly.'
- b. Nas davno pugajut, što idet rost zbolevaemosti.
us.ACC long frighten that goes increase prevalence.of.disease.GEN
'They have long frightened us with the fact that the prevalence of the disease is
increasing.'

We can summarize the pattern displayed by *pugat* 'frighten' as follows. A *što*-clause can replace the nominative stimulus, as in (13a), but cannot replace the instrumental phrase split from the stimulus, as in (13b). A *što*-clause can replace an instrumental phrase when the subject is interpreted as an agent, as in (13c), but not if the clause itself is interpreted as an instrument, as can be seen in (13d).

- (13) a. (Nom_{STIMULUS}) *frighten* Acc (Nom_{STIMULUS}) / CP
b. Nom_{STIMULUS} *frighten* Acc Ins_{STIMULUS} / *CP
c. Nom_{AGENT} *frighten* Acc Ins_{CONTENT} / CP
d. Nom_{AGENT} *frighten* Acc Ins_{INSTRUMENT} / *CP

What the paradigm in (13) shows is that the unacceptability of a *što*-clause to be realized in (13b) is not due to either (a) lexical specification of *pugat* 'frighten', or (b) failure of a *što*-clause to realize stimulus, or (c) failure of a *što*-clause to alternate with an instrumental DP. Rather it is the result of interplay between the thematic properties of the verb and morphological realization of its arguments. In section 3 I provide an account of the paradigm in (13).

Let's now turn to the verb *grozit* 'threaten', which also displays agentive/nonagentive alternation. Unlike *pugat* 'frighten', *grozit* 'threaten' is not a psych verb because its dative object is a 'potentially adversely affected party', to borrow the term from Sportiche (2010), rather than a psychologically affected party. Yet the verb participates in an alternation which resembles the role splitting construction observed with *pugat* 'frighten'. In (14a) the nominative argument realizes the source of the threat, whereas in (14b) that source appears to be split between a nominative and an instrumental argument.

- (14) a. Emu grozit uvol'nenie iz-za skandala.
him.DAT threatens dismissal.NOM due to scandal.GEN
'Resignation due to scandal threatens him.'

⁸ It has been noted in the literature that *pugat* 'frighten' and other object experiencer verbs can introduce direct speech, see, for example, Mel'čuk (1988). This is illustrated in (i).

(i) — A ja ved' dvojnju mogu rodit', — pugala Tanja Sergeja. (RNC)
and I.NOM PRT twins.ACC can bear frightened Tanja.NOM Sergej.ACC
'"I can give birth to twins", Tanya would say to frighten Sergey.'

- b. Skandal grozit emu uvol'neniem.
 scandal.NOM threatens him.DAT dismissal.INS
 'The scandal threatens him with dismissal.'

Unlike the case of *pugat* 'frighten', the semantic relation between the split constituents is not that of possession but rather that of cause and effect, whereby the cause is realized in the subject position. However, in both constructions we see that a noun phrase is demoted from the subject position and comes to be realized as an instrumental argument, whereas the dependent noun phrase is instead promoted to the subject position. I believe that this similarity warrants analyzing these two alternations on a par as an instance of the role splitting construction.

Just like in the case of *pugat* 'frighten', the subject of *grozit* 'threaten' can also be agentive as in (15). In this case the instrumental argument is interpreted either as a content of the threat or as an instrument.

- (15) Načal'nik grozit emu uvol'neniem / kulakom.
 boss.NOM threatens him.DAT dismissal.INS fist.INS
 'His boss threatens him with dismissal/with his fist.'

When we consider realization of a *čto*-clause, we see a pattern very similar to that displayed by *pugat* 'frighten'. A *čto*-clause can replace the source argument in the nonderived construction, as in (16a), but cannot replace the instrumental argument in the role splitting construction, as can be seen in (16b). However, when the verb is used agentively, *čto*-clause can replace the instrumental argument to express the content of the speech act denoted by the verb, as in (16c).

- (16) a. Emu grozit, čto oni ego uvoljat iz-za ètogo
 him.DAT threatens that they.NOM him.ACC dismiss due to this
 skandala.
 scandal.GEN
 lit.: 'It threatens him they will dismiss him because of this scandal.'
- b. * Ètot skandal emu grozit, čto oni ego uvoljat.
 this scandal.NOM him.DAT threatens that him.ACC they.NOM dismiss
 intended: 'Resignation due to this scandal threatens him.'
- c. ? Načal'nik emu grozit, čto (on) ego uvolit.⁹
 boss.NOM him.DAT threatens that he.NOM him.ACC dismisses
 lit.: 'His boss threatens him that he will dismiss him.'
 'His boss threatens him with dismissal.'

Importantly, there is nothing semantically wrong with (16b) because when the clause is supported by a correlative, the contrast between (16b) and (16c) disappears, as can be seen in (17a) and (17b), respectively.¹⁰

⁹ In (16c) the subject pronoun in the embedded clause is usually understood as co-referring with the subject of the matrix clause and often omitted. I do not have an account of that effect.

¹⁰ I find examples like (16c) and (17b) a little stilted but they, nonetheless, can be frequently found naturally occurring, as in (i).

- (i) a. Roditeli grozjat rebenku tem, čto ostavjat ego odnogo. (RNC)
 parents.NOM threaten child.DAT it.INS that leave him.ACC alone
 'The parents are threatening their child by saying that they will leave him alone.'

- (17) a. Ètot skandal emu grozit tem, što oni ego
 this scandal.nom him.DATthreatens it.INS that him.ACCthey.NOM
 uvoljat.
 dismiss
 ‘Resignation due to scandal threatens him.’
- b. ? Načal’nik emu grozit tem, (on) što ego uvolit.
 boss.NOM him.DATthreatens it.INS he.NOM that him.ACCdismisses
 ‘His boss threatens him with dismissal’

That pattern displayed by *grozit* ‘threaten’ is summarized in (18).

- (18) a. Dat threaten Nom_{SOURCE} / CP
 b. Nom_{SOURCE} Dat threaten Ins_{SOURCE} / *CP
 c. Nom_{AGENT} Dat threaten Ins_{CONTENT} / CP

Given that the patterns for *pugat* ‘frighten’ and *grozit* ‘threaten’ are very similar, there must be a common account for why a *što*-clause is not possible in (13b) and (18b). I already dismissed an account in terms of lexical specification, alternation with an instrumental argument and the failure of *što*-clause to realize a particular semantic role such as stimulus or source. There is one more potential account for the data. Both unacceptable patterns feature a verb taking a nonagentive nominative subject and a *što*-clause. This is in contrast with the situation when the nominative subject is agentive, in which case a *što*-clause becomes possible. This suggests that there might be a condition in the grammar prohibiting the pattern in (19).

- (19) * Nom_{NONAG} V CP

I would like to show, however, that this cannot be the case. It turns out that agentive/non-agentive alternation in nominative position does not always have an effect on the ability of a verb to take a *što*-clause. Consider the verb *ubedit* ‘convince’, which takes an accusative goal argument and a theme realized as a *što*-clause, optionally embedded in a PP complement. Crucially, the distribution of a *što*-clause is independent of whether the verb has an agentive nominative argument, as (20a,b) or nonagentive, as in (21a,b).¹¹

- (20) a. Ja ego ubedila, što razumnee kupit’ daču v
 I.NOM him.ACCconvinced that more.reasonable buy dacha.ACC in
 Podmoskoye. (RNC)
 Moscow.Oblast.LOC
 ‘I convinced him that it was more reasonable to buy a dacha in Moscow Oblast.’

-
- b. Grozil norvežcam, što opublikuet ètu istoriju v presse. (RNC)
 threatened norwegians.DAT that publishes this story.ACC in press.LOC
 ‘He threatened the Norwegians saying that he would publish this story in the press.’

¹¹ Other verbs such as *napominat* ‘remind’, *namekat* ‘hint’ and *govorit* ‘say’ also display the agentive/nonagentive alternation. But since its effect on the availability of a *što*-clause is less clear, I leave the discussion of these verbs for future research.

- b. Ja ego ubedila v tom, što razumnee kupit' daču
 I.NOM him.ACC convinced in it.LOC that more.reasonable buy dacha.ACC
 v Podmoskoye.
 in Moscow.Oblast.LOC
 'I convinced him of the fact that it was more reasonable to buy a dacha in Moscow Oblast.'
- (21) a. Kornilova beseda ubedila, što Kerensky sdalsjsa. (RNC)
 K.ACC conversation.NOM convinced that K.NOM defeated
 'The conversation convinced Kornilov that Kerensky had defeated.'
 b. Kornilova beseda ubedila v tom, što Kerensky sdalsjsa.
 K.ACC conversation.NOM convinced in it.LOC that K.NOM defeated
 'The conversation convinced Kornilov of the fact that Kerensky had defeated.'

The data presented in this section 2.2 can be summarized as in (22). As I showed above, there does not seem to be a readily available explanation for these facts. The explanation that I will propose will be related to the thematic properties of the verbs involved and to the analysis of the role splitting construction.

- (22) a. The verb *pugat* 'frighten' (*grozit* 'threaten') can combine with a *što*-clause only if its nominative argument is agentive (or when it does not take a nominative argument).
 b. The verb *ubedit* 'convince' can combine with a *što*-clause whether its nominative argument is agentive or not.

2.3. Animate/inanimate object alternation

In this section I will discuss animate/inanimate object alternation with verbs *zlit'sja* 'be angry' and *rugat* 'criticize'. The alternation in both cases will arise due to role splitting.

The verb *zlit'sja* 'be angry' can appear in two argument structures. In (23a) the target of emotion is realized as an inanimate PP headed by *na* 'at', whereas in (23b) it is split into two PPs, one headed by *na* 'at' and realizing the possessor of the original target and the other headed by *za* 'for' and realizing the target itself. Apart from the requirement on possessive relation to hold between the two split constituents, there is a very strong preference for the animacy of the possessor, as shown in (23c), as opposed to what we see in the subject split construction.¹²

- (23) a. On zlit'sja na Mašino uprjamstvo.
 he.NOM is angry at Mary's stubbornness.ACC
 'He is angry at Mary's stubbornness.'

¹² In certain cases it looks as if there is no possessive relation between the two constituents, as in (i). I would like, however, to treat such examples as standing proxy for full CPs containing a pronominal copy of the target realized as the *na*-PP. Indeed, (i) is interpreted along the lines of 'Tatjana was angry at him for sending/writing/reading/etc. these letters'.

(i) Tatjana zilas' na nego za èti pis'ma. (adapted from RNC)
 T.NOM was angry at him.ACC for these letters.ACC
 'Tatjana was angry at him for these letters.'

- b. On zlistsja na Mašu za ee uprjamstvo.
 he.NOM is angry at Mary.ACC for her stubbornness.ACC
 ‘He is angry at Mary for her stubbornness.’
- c. ?? On zlistsja na Mašino uprjamstvo za ego
 he.NOM is angry at Mary’s stubbornness.ACC for its
 bessmyslennost’.
 foolishness.ACC
 intended: ‘He is angry at Mary’s stubbornness because of its foolishness.’

Now let’s consider realization of a *čto*-clause. A *čto*-clause can realize the target in the non-split construction, whether directly attached to the verb, as in (24b), or embedded in a PP, as in (24a).

- (24) a. On zlistsja, čto ona ne soglašajetsja s nim.
 he.NOM is angry that she.NOM not agrees with him.INS
 ‘He is angry that she does not agree with him.’
- b. ? On zlistsja na to, čto ona ne soglašajetsja s nim.¹³
 he.NOM is angry at it.ACC that she.NOM not agrees with him.INS
 ‘He is angry at the fact that she does not agree with him.’

A *čto*-clause can also replace the target realized as a *za*-PP in the split construction, whether embedded in that PP, as in (25a), or not, as in (25b). In this case, the *čto*-clause is interpreted as a property predicated of the target realized as a *na*-PP.¹⁴

- (25) a. On zlistsja na Mašu, čto ona ne soglašajetsja s
 he.NOM is angry at Mary.ACC that she.NOM not agrees with
 nim.
 him.INS
 ‘He was angry at her that she does not agree with him.’
- b. On zlistsja na Mašu za to, čto ona ne
 he.NOM is angry at Mary.ACC for it.ACC that she.NOM not
 soglašajetsja s nim.
 agrees with him.INS
 ‘He is angry at Mary for the fact that she does not agree with him.’

The crucial fact is that when the split does not happen, a *čto*-clause cannot co-occur with the target in the non-split construction, as shown in (26a). There is also a slight ameliorating effect when a *čto*-clause is embedded under a *za*-PP, as witnessed in (26b).

¹³ Examples like (24b) sound a little stilted to my ear but they can be found in the corpus, see (i).

(i) Zlistsja na to, čto u nego nedostatočno deneg. (RNC)
 was angry at it.ACC that at him.GEN not enough money.GEN
 ‘He was angry at the fact that he didn’t have enough money.’

¹⁴ It also has to contain a pronominal copy of the possessor of that property. See also footnote 4.

- (26) a. * On zllisja na ee uprjamstvo, što ono mešacet
 he.NOM was angry at her stubbornness.ACC that it.NOM interferes
 emu žit'.
 him.DAT live
 intended: 'He was angry at her stubbornness because it interferes with his life.'
- b. ?? On zllisja na ee uprjamstvo za to, što ono
 he.NOM was angry at her stubbornness.acc for it.ACC that it.NOM
 mešacet emu žit'.
 interferes him.DAT live
 intended: 'He was angry at her stubbornness because it interferes with his life.'

The facts can be summarized as in (27).¹⁵ The question that they pose is why the split construction with *zllisja* 'be angry' requires the *na*-PP to be animate and why a *za*-PP is slightly less unacceptable than a CP when the split occurs.

- (27) a. Nom *angry na*-PP_{TARGET (INAN)} / CP
 b. Nom *angry na*-PP_{TARGET (ANIM)} *za*-PP_{TARGET (INAN)} / CP
 c. * Nom *angry na*-PP_{TARGET (INAN)} CP_{TARGET (INAN)}
 d. ?? Nom *angry na*-PP_{TARGET (INAN)} *za*-PP_{TARGET (INAN)}

Rugat 'criticize' resembles *zllisja* 'be angry' in that it can also appear in two different argument structures. It can take a sole inanimate accusative argument, which describes the target of criticism as in (28a).¹⁶ In (28b) the target of criticism is split between an accusative argument and a PP headed by *za* 'for'. As in the case of *zllisja* 'be angry', there is a very strong preference for the animacy of the accusative argument, as shown in (28c).

- (28) a. On rugacet kapitalizm / otečestvennye avtomobili.
 he.NOM criticizes capitalism.ACC domestic automobiles.ACC
 'He criticizes capitalism/domestic automobiles.'
- b. Ona rugacet Ivana za ploxoe povedenie.
 she.NOM criticizes John.ACC for bad behavior.ACC
 'She criticizes John for his bad behavior.'
- c. ?? On rugacet kapitalizm za social'noe neravenstvo.
 he.NOM criticizes capitalism.ACC for social inequality.ACC
 intended: 'He criticizes capitalism for social inequality.'

¹⁵ Other verbs showing similar behavior include *obidet'sja (na)* 'get offended (at)', *smejat'sja (nad)* 'laugh (at)' and *izdevat'sja (nad)* 'mock (at)'.

¹⁶ There seems to be an s-selectional restriction on the sole accusative argument restricting it to general notions in contrast to concrete objects, specific instantiations of properties, or particular actions. Hence split constructions like (28b) usually don't have two-place alternants such as (i). Another consequence is that a *što*-clause may not be the sole argument of the verb, as shown in (ii).

- (i) ?? Ona rugacet ego ploxoe povedenie.
 she.NOM criticizes him.ACC bad behavior.ACC
 intended: 'She criticizes his bad behavior.'
- (ii) * On rugacet, što kapitalizm poroždaet social'noe neravenstvo.
 he.NOM criticizes that capitalism.NOM generates social inequality.ACC
 intended: 'He criticizes capitalism for generating social inequality.'

When we consider the realization of a *čto*-clause, we see the following pattern. A *čto*-clause has to co-occur with an accusative argument and this argument, just like in the case of *zlitsja* ‘be angry’, has to be animate, as shown in (29a), as opposed to (29b).¹⁷

- (29) a. ? Ona rugaet ego, čto on ploxo sebja vedet.
 she.NOM criticizes him.ACC that he.NOM badly self behaves
 lit.: ‘She criticizes him that he behaves badly.’
 b. * On rugaet kapitalizm, čto on poroždaet social’noe
 he.NOM criticizes capitalism.ACC that he.NOM generates social
 neravenstvo.
 inequality.ACC
 intended: ‘He criticizes capitalism for generating social inequality.’

When a *čto*-clause is embedded under a *za*-PP, the contrast between the two examples remains, but, as in the case of *zlitsja* ‘be angry’, there is a slight ameliorating effect on the example with an inanimate argument, as shown in (30b).

- (30) a. Ona rugaet ego za to, čto on ploxo sebja vedet.
 she.NOM criticizes him.ACC for it.ACC that he.NOM badly self behaves
 ‘She criticizes him for behaving badly.’
 b. ?? On rugaet kapitalizm za to, čto on poroždaet
 he.NOM criticizes capitalism.ACC for it.ACC that he.NOM generates
 social’noe neravenstvo.
 social inequality.ACC
 intended: ‘He criticizes capitalism for generating social inequality.’

The pattern can be summarized as in (31). As can be seen, the pattern is very similar to what we observed with *zlitsja* ‘be angry’.¹⁸

- (31) a. Nom *criticize* Acc_{TARGET (INAN)}
 b. Nom *criticize* Acc_{TARGET (ANIM)} *za*-PP_{TARGET (INAN)} / CP
 c. ?? Nom *criticize* Acc_{TARGET (INAN)} *za*-PP_{TARGET (INAN)}
 d. * Nom *criticize* Acc_{TARGET (INAN)} CP_{TARGET (INAN)}

We can summarize the patterns displayed by both verbs discussed in this section as in (32).

- (32) a. The verb *zlitsja* ‘be angry’ can combine with a *čto*-clause only when its oblique argument is animate (or when it does not take an oblique argument).
 b. The verb *rugat* ‘criticize’ can combine with a *čto*-clause only when its accusative argument is animate.
 c. With both verbs, there is a slight ameliorating effect when an otherwise unacceptable *čto*-clause is embedded under a PP.

¹⁷ Examples like (29a) sound a little stilted to my ear but, nevertheless, they are found in the corpus, as can be seen in (i).

(i) Mat' rugala ego, čto on ne vyučil urokov. (RNC)
 mother.NOM criticized him.ACC that he.NOM not learned lessons.ACC
 ‘Mother scolded him for not having learned his lessons.’

¹⁸ A similar pattern is displayed by the verb *xvalit* ‘praise’.

3. Account

In this section, I will propose a theta-theoretic account of (22) and (32). It will be based on Reinhart's (2002) Theta system with extensions proposed by Marelj (2004). I will first make a brief introduction of the Theta system. Then I will consider predicates discussed in section 2 on a case-by-case basis to show how their properties can be accounted for within that system. Along the way, I will propose small amendments to the Theta system necessitated by my analysis. I will not repeat examples from section 2.

3.1 The Theta system

Reinhart's (2002) Theta system is a calculus of thematic roles, which are understood as clusters of all possible combinations of two binary features, namely [c], for *Cause change*, and [m], for *Mental state*. Thematic roles can be specified for both features or for one. An example of a fully specified, or binary, theta-cluster is agent, which corresponds to [+c+m] as it both brings about change and is mentally involved (volitional). An example of an underspecified, or unary, theta-cluster is a cause, which corresponds to [+c] as it brings about change. Cause is unspecified for +/-m, as it can be either animate or inanimate. The full list of theta-roles defined within the Theta system along with some notation to refer to them is given in (33) and (34) respectively, taken from Marelj (2004).

(33) List of theta clusters

[+c+m]	agent
[+c-m]	instrument
[-c+m]	experiencer
[-c-m]	theme
[+c]	cause
[-c]	recipient/goal/benefactor
[-m]	subject matter/source
[+m]	sentient

(34) Notation

[α]	= Feature cluster α .
/ α	= Feature (and value) α . (E.g. the feature /+m occurs in the clusters [+c+m], [-c+m], and [+m])
[/ α]	= A cluster one of whose features is / α . (E.g. [/-c] clusters are [-c+m], [-c-m] and [-c].)
[+]	= A cluster all of whose features have the value +.
[-]	= A cluster all of whose features have the value -.

The Theta system provides mapping, or linking, rules governing syntactic realization of theta-clusters. The primary focus of these rules is on whether an argument realizing a particular theta-cluster will be merged internally or externally. The secondary focus is on which theta-cluster can be realized with which syntactic categories and how the thematic makeup of a predicate determines its case properties. I will be concerned only with the second group of rules. Of interest to me will be two generalizations, given in (35) and (36).

(35) If the entry includes both a [+] cluster and a fully specified $[/\alpha, /-c]$, mark the verb with the [Acc] feature.

(36) Unary [-] clusters (typically) require inherent case (Preposition or Dative).

The Theta system also provides lexical operations altering the thematic makeup of a given predicate such as Lexical Causativization, etc. I will not discuss them in detail although I will make use of and briefly touch on some of these operations in my analysis.

In my analysis, I will also heavily rely on extensions to the Theta system proposed by Marelj (2004). The major condition that I adopt from that work is given in (37). This condition ensures that unary clusters are expanded into binary clusters at some point in the derivation. Full Specification is guided by the Non-Identity Constraint, formulated by Marelj (2004) as in (38).

(37) *Full Interpretation of Thematic Roles* (henceforth: Full Specification)
For the purposes of interpretation, all clusters must be fully specified.

(38) a. *The Non-Identity Constraint*

An n-place verb, $n > 1$, is encoded in terms of non-identical feature clusters.

b. The Non-Identity Constraint holds at the interface between the system of concepts and the computational system (CS) and at the interface between the CS and the conceptual-intentional (C-I) system.

3.2. Agentive/nonagentive subject alternation

In this section I will provide an account of the agentive/nonagentive alternation. I will first discuss *pugat* ‘frighten’ and then *grozit* ‘threaten’.

The pattern displayed by *pugat* ‘frighten’ is given in (39), repeated. The crucial facts that we have to explain are the following. Why is it that when the verb is nonagentive and its stimulus role is split, it can only take a DP marked with instrumental case but not a *čto*-clause, as in (39b), while in the absence of split, the stimulus can be realized as a *čto*-clause, as in (39a)? And why is it that when the verb is agentive it can take both an instrumental phrase and a *čto*-clause, as in (39c) and that the latter cannot be interpreted as an instrument, as in (39d)?

- (39) a. $(\text{Nom}_{\text{STIMULUS}}) \textit{frighten} \text{ Acc } (\text{Nom}_{\text{STIMULUS}}) / \text{CP}$
 b. $\text{Nom}_{\text{STIMULUS}} \textit{frighten} \text{ Acc } \text{Ins}_{\text{STIMULUS}} / * \text{CP}$
 c. $\text{Nom}_{\text{AGENT}} \textit{frighten} \text{ Acc } \text{Ins}_{\text{CONTENT}} / \text{CP}$
 d. $\text{Nom}_{\text{AGENT}} \textit{frighten} \text{ Acc } \text{Ins}_{\text{INSTRUMENT}} / * \text{CP}$

The first thing we have to do is to understand what theta-clusters the verb *pugat* ‘frighten’ involves. In Reinhart’s (2002) analysis, which follows Pesetsky (1995), object experiencer verbs are underlyingly three-place concepts comprised of an experiencer cluster $[-c+m]$, a cause cluster $[+c]$ and a subject matter cluster $[-m]$. Reinhart assumes that due to Pesetsky’s (1995) target/subject matter restriction, $[+c]$ and $[-m]$ clusters always fail to be realized

together.¹⁹ Consequently, in a given derivation either a [+c] or [-m] cluster is chosen, alongside the [-c+m] cluster.

Contra Reinhart (2002), I would like to suggest that Russian *pugat* ‘frighten’ does not in fact have a [+c] role, or, alternatively, it is frozen in the lexicon and fails to be realized.²⁰ This can be shown in the following way.²¹

Suppose a [+c] role were able to be realized, then we would expect it to be semantically distinct from the [-m] role of the same verb, that is, to be something which can cause fear without being the content of fear. It’s quite tricky to come up with such a case because even examples like (40a) modeled on Pesetsky (1995) which are usually taken to exemplify a causer which is not a subject matter can be analyzed to the effect that the content of fear is the article itself qua its content. Note that even in examples like (40b), which unambiguously involve the subject matter role, it is always some aspect of the subject that is in fact the content of fear, for instance, possible consequences of the epidemics. Hence, in my view, (40a) and (40b) are both about the content of fear and, consequently, involve a [-m] role.

- (40) a. Stat’ja o rasprostranjajuščejseja èpidemii ego
 article.NOM about spreading epidemics.LOC him.ACC
 is- pugala.
 PFV- frightened
 ‘The article about the spreading epidemics frightened him.’
- b. Rasprostranjajuščajasja èpidemija ego pugaet.
 spreading epidemics.NOM him.ACC frightens
 ‘The spreading epidemic frightens him.’

Interestingly, when the cause of fear is clearly dissociated from its content, the former cannot be the subject. Thus, for example, (41a) with an event in the subject position of *pugat* ‘frighten’ is not felicitous, even though this meaning is expressible with the paraphrase in (41b).

- (41) a. * Pročtenie stat’i ego is- pugalo.
 reading.NOM article.GEN him.ACC PFV- frightened
 intended: ‘Reading of the article frightened him.’
- b. Pročtenie stat’i vyzvalo v nem strax.
 reading.NOM article.GEN caused in him.ACC fear.ACC
 ‘Reading of the article induced fear in him.’

This test shows that Russian verb *pugat* ‘frighten’ lacks or fails to realize a [+c] cluster. For simplicity I will assume the former option (see some discussion below of the consequences of that move). Given that the verb is now represented as ([-c+m], [-m]), the question is what cluster the subject in the agentive version corresponds to. I would like to propose that the agentive version is derived from the nonagentive one by the Lexical Causativization

¹⁹ This is due to the Cluster-Distinctness Constraint that she proposes, which is given in (i).

(i) a. Two indistinct theta-clusters cannot be both realized on the same predicate.

b. Distinctness: two feature clusters α and β are distinct iff i) they share at least one feature, and ii) there is at least one feature or value which they do not share.

²⁰ This is an option Reinhart (2002) in fact assumes for some object experiencer verbs like *fascinate*. Note that Pesetsky (1995) also argues that some object experiencer verbs like *appeal* are unaccusative and do not involve an external causer.

²¹ I am grateful to the anonymous reviewer for the discussion of this point.

operation, which adds a [+c+m] cluster to the verb.^{22 23} This is schematized in (42). The fact that the agentive version is derived by a lexical operation also explains why it is lexically restricted and why the semantic relations connecting the two split constituents are also lexicalized, as in the case of *grozit* ‘threaten’; see also footnote 7.

(42) nonagentive ‘frighten’ ([-c+m], [-m]) → agentive ‘frighten’ ([+c+m], [-c+m], [-m])

Having established the thematic structure of *pugat* ‘frighten’, we can now ask why in the nonagentive version, only an instrumental DP is possible as a complement but not a *čto*-clause. As I argued in section 2.2, the nonagentive version with an instrumental phrase can be analyzed as a case of splitting of the subject matter role. Implementing the role splitting analysis would lead us to assume that the [-m] cluster splits into two identical [-m] clusters.²⁴ By (37) both [-m] clusters have to get fully specified in a way that they come out as not violating the Non-Identity Constraint, given in (38). That means that one of the clusters will end being [+c-m] and the other [-c-m].²⁵ Now let’s make the natural assumption that the realization of a [+c-m] is determined by a mapping rule given in (43). This rule implies that only (44b) but not either of the two other potential derivations involving a CP in (44c) and (44d) will be available. In the absence of splitting in (44a) no problem arises for realization of a CP.

(43) [+c-m] cluster has to be mapped to an instrumental phrase or a *with*-PP.²⁶

- (44) a. Acc_[-c+m] *frighten* Nom_[-m] → [-c-m] / CP_[-m] → [-c-m].
 b. Nom_[-m] → [-c-m] Acc_[-c+m] *frighten* Ins_[-m] → [+c-m]. (non-agentive)
 c. * Nom_[-m] → [-c-m] Acc_[-c+m] *frighten* CP_[-m] → [+c-m]. (non-agentive)
 d. * Nom_[-m] → [+c-m] Acc_[-c+m] *frighten* CP_[-m] → [-c-m]. (non-agentive)

This concludes the account of the unacceptability of a *čto*-clause in the nonagentive version of *pugat* ‘frighten’. Note that it is crucial for this account that the nonagentive subject is not [+c]. Suppose it were and suppose that the Cluster-Distinctness Condition from footnote 19 did not exist so that both [+c] and [-m] cluster were able to be realized.²⁷ Then the derivation

²² According to Reinhart (2002), Lexical Causativization usually applies to verbs that already contain [+c+m] cluster (which then has to be turned into [-c+m]) but, as she notes, this is not obligatory. Thus nothing precludes it from applying to verbs with the structure ([-m], [-c+m]).

²³ The anonymous reviewer raises the question about whether Lexical Causativization can only add agent argument given that in some languages causative morphology can be associated with the addition of a [+c] cluster. I would like to suggest, following Harley (to appear), that causative might be coding the cause subevent rather than the presence of the causer itself. Assuming that Expletivization need not be morphologically marked, the relevant causative verbs can still be analyzed as derived by Expletivization.

²⁴ See more on the nature of the role-splitting mechanism below.

²⁵ Here we have to assume that it is prohibited to expand only one of the identical clusters even though it wouldn’t violate the Non-Identity Condition in the general case.

²⁶ The generalization in (49) might be problematic for examples like (ia), in which, according to Reinhart (2002), the subject realizes [+c-m]. I would like to propose, instead, that *the knife* in (ia) should correspond to the [+c] cluster and that unacceptability of (ib) should follow from semantic selection.

(i) a. The knife peeled the apple.

b. * The heat peeled the apple.

²⁷ There are reasons to believe that Cluster-Distinctness Condition does not exist. Pesetsky (1995) has observed that a target ([-c]) and a subject matter ([-m]), which come out as nondistinct by the condition, can co-occur, as in *Sue is angry with Bill about the party*. The target/subject matter restriction which motivated the

in (45) would be available. This would predict, contrary to fact, that a *čto*-clause is compatible with a nonagentive subject.²⁸

(45) Nom_{[+c] → [+c-m]} Acc_[-c+m] *frighten* CP_{[-m] → [-c-m]}. (non-agentive)

Let's look at the agentive version, where both an instrumental phrase and a *čto*-clause (necessarily interpreted as content rather than an instrument) are possible. Just like in the nonagentive case, the [-m] cluster can be interpreted as [+c-m] and realized as an instrumental DP, as in (46a). But now that there is no [-c-m] cluster present (because there is no role splitting), so it can also be expanded as [-c-m] and realized as a *čto*-clause, as in (46b). The fact that the [+c-m] cluster cannot be realized as a *čto*-clause, as shown in (46c), follows from the condition in (42).

(46) a. Nom_[+c+m] Acc_[-c+m] *frighten* Ins_{[-m] → [+c-m]}. (agentive)
 b. Nom_[+c+m] Acc_[-c+m] *frighten* CP_{[-m] → [-c-m]}. (agentive)
 c. * Nom_[+c+m] Acc_[-c+m] *frighten* CP_{[+m] → [+c-m]}. (agentive)

The analysis of *pugat* 'frighten' that I have just argued for, according to which the verb does not involve a [+c] cluster, has two consequences for Reinhart's (2002) system. Firstly, given that there is no [/+] cluster, under the condition in (35), there would be no way for the verb to be marked [Acc]. To solve this problem, I would like to assume that the accusative on the experiencer is inherent (note that inherent accusative is independently needed for Russian to account for the marking of the sole argument of verbs like *tošnit* 'be sick'); see also Landau (2010) for the suggestion that accusative experiencers are always oblique.

Another consequence is that we would have to reject the view taken by Reinhart (2002) that some object and subject experiencer verbs are related by the Expletivization operation, which eliminates [+c] role from the lexical entry of the verb. At first glance, this would be an undesirable consequence for Russian, where the subject experiencer 'frighten' bears reflexive marking, just like anticausative verbs, which Reinhart also analyses as the result of Expletivization; cf. (47). However, reflexive marking in Russian can accompany variable argument realization that is not necessarily the result of a lexical operation. Consider, e.g. the locative alternation in (48).

(47) Ona pugalas' krikov.
 she.NOM feared.REFL screams.GEN
 'She feared screams.'

(48) a. Napitok soderžit alkohol'.
 drink.NOM contains alcohol.ACC
 'The drink contains alcohol.'

condition in the first place and is illustrated in (i), might simply follow from the fact that object experiencer verbs are two-place.

(i) * Ivan bespokoit menja o nej.
 John.NOM worries me.ACC about her.ACC
 lit.: 'John worries me about her'.

²⁸ The anonymous reviewer suggests that it might be the case that (45) is ruled out independently, for example, by the requirement that instrumental clusters ([+c-m]) have to co-occur with an agent. My analysis of the instrumental argument of *pugat* 'frighten' in the role-splitting construction forces me to dismiss this possibility.

- b. V napitke soderžitsja alkohol'.
 in drink.LOC contains.REFL alcohol.NOM
 'The drink contains alcohol.'

Before moving on to the verb *grozit'* 'threaten', I would like to say a few words about the nature and place of the role-splitting operation in the derivation. According to Marelj (2004), this constraint applies at the interface between the system of concepts and the CS and at the interface between the CS and the C-I system. This seems to imply either that both Role Splitting and Full Specification take place in the lexicon before the first activation of the Non-Identity Constraint or that Role Splitting and Full Specification apply in between the two points of activation of that constraint. Both options seem to run into problems.²⁹

If the first option is adopted, we would lose the peculiarities of the linking of unary clusters to syntactic categories (since there would be no unary clusters when the mapping procedure applies). If the second option is adopted, we would not be able to capture lexical restrictedness of the role splitting operation. So I would like to propose a compromising solution. Suppose that role splitting applies in the lexicon but Full Specification can apply both before and after the mapping procedure. Thus it will be there to ensure that we don't have two identical clusters at the interface between the system of concepts and the CS but it will be able to wait until the interface with the C-I system so as not to expand non-split unary clusters prematurely, thus allowing them to be linked to the right syntactic category.³⁰

Given the timing of the operations, it is clear that only unary clusters can be split in the lexicon otherwise it will lead to the violation of the Non-Identity Constraint. In principle, we will expect that each of the four unary clusters will be able to be expanded. I have already discussed the splitting of [-m] cluster and the target ([-c]) cluster. As to the [+] clusters, the splitting of [+c] cluster can constitute a familiar case of instruments and it will also derive the fact that instruments are licensed by agents. The splitting of [+m] cluster might underlie the benefactive construction. But I will not undertake an elaborate discussion of this issue here.

Let's turn now to the case of *grozit'* 'threaten'. The pattern displayed by *grozit'* 'threaten' is given in (49), repeated. The crucial facts that we have to explain are the following. Why is it that when the verb is nonagentive and its source role is split, it can only take an instrumental phrase but not a *čto*-clause, as in (49b), while in the absence of split, the stimulus can be realized as a *čto*-clause, as in (49a)? And why is it that when the verb is agentive it can take both an instrumental phrase and a *čto*-clause, as in (49c)?

- (49) a. Dat *threaten* Nom_{SOURCE} / CP
 b. Nom_{SOURCE} Dat *threaten* Ins_{SOURCE} / *CP
 c. Nom_{AGENT} Dat *threaten* Ins_{CONTENT} / CP

The question that arises is what the thematic structure of the verb is. I would like to propose that the nonagentive *grozit'* 'threaten' is underlyingly a two-place concept comprised of a goal ([-c]) and a source argument ([-m]) and that's what we see in (49a).

In section 2.3 I argued that the three-place construction observed in (50a), repeated, should be analyzed as a case of splitting of the source role. One interesting argument for that is that the subject position may not be readily quantified, as shown in (50b). Although I don't have a clear understanding of this phenomenon, it would be totally unexpected if the subject in (50b)

²⁹ I am grateful to the anonymous reviewer for pointing out some of these problems to me.

³⁰ More specifically, Full Specification has to be restricted in a way that at the interface between the system of concepts and the CS it only applies in the case of role splitting and not otherwise.

were an independent [+c] argument, whereas if the subject and the instrumental argument formed some kind of unit, the deviance of (50b) might be related to the deviance of (50c).

- (50) a. Skandal grozit emu uvol'neniem.
 scandal.NOM threatens him.DAT dismissal.INS
 'The scandal threatens him with dismissal.'
- b. ?? Vse grozit emu uvol'neniem.
 everything.NOM threatens him.DAT dismissal.INS
 intended: 'Everything threatens him with dismissal.'
- c. ?? Emu grozit vse.
 him.DAT threatens everything.NOM
 intended: 'Everything threatens him.'

Thus we can conclude that the nonagentive version is ([-c], [-m]), with the [-m] cluster possibly split into two clusters. As to the agentive version, I will assume that it is derived by the Lexical Causativization operation, as in the case of *pugat'* 'frighten', which is schematically represented in (51).

- (51) nonagentive 'threaten' ([-c], [-m]) → agentive 'threaten' ([+c+m], [-c], [-m])

Now we can ask why the agentive version permits both an instrumental DP and a *čto*-clause as a complement, while the nonagentive version permits only the former. The account would be almost exactly as in the case of *pugat'* 'frighten'. In the absence of role splitting, no problem for realization of a CP arises, as in (52a). When splitting happens, however, it forces the [+c-m] cluster to be marked instrumental, as can be seen in (52b)–(52d). The agentive version in (52e,f) is similar to that of the verb *pugat'* 'frighten'.

- (52) a. $\text{Dat}_{[-c] \rightarrow [-c+m]}$ *threaten* $\text{Nom}_{[-m] \rightarrow [-c-m]}$ / CP. (non-agentive)
 b. $\text{Nom}_{[-m] \rightarrow [-c-m]}$ *threaten* $\text{Dat}_{[-c] \rightarrow [-c+m]}$ $\text{Ins}_{[-m] \rightarrow [+c-m]}$. (non-agentive)
 c. * $\text{Nom}_{[-m] \rightarrow [-c+m]}$ *threaten* $\text{Dat}_{[-c] \rightarrow [-c+m]}$ $\text{CP}_{[-m] \rightarrow [-c-m]}$. (non-agentive)
 d. * $\text{Nom}_{[-m] \rightarrow [-c-m]}$ *threaten* $\text{Dat}_{[-c] \rightarrow [-c+m]}$ $\text{CP}_{[-m] \rightarrow [+c-m]}$. (non-agentive)
 e. $\text{Nom}_{[+c+m]}$ *threaten* $\text{Dat}_{[-c] \rightarrow [-c+m]}$ $\text{Ins}_{[-m] \rightarrow [+c-m]}$. (agentive)
 f. $\text{Nom}_{[+c+m]}$ *threaten* $\text{Dat}_{[-c] \rightarrow [-c+m]}$ $\text{CP}_{[-m] \rightarrow [-c-m]}$. (agentive)

The cases with agentive/nonagentive alternation discussed above should be contrasted with other similar cases like *ubedit* 'convince', which can take a PP complement or a *čto*-clause independently of whether they are agentive or nonagentive, which is schematically represented in (53).

- (53) Nom *convince*_{AG/NONAG} PP/CP

To account for the behavior of *ubedit* 'convince', we have to understand what thematic structure it has. I would like to propose that it is a three-place verb, involving a cause ([+c]), an experiencer ([-c+m]) and a subject matter ([-m]). The choice for the accusative argument is uncontroversial. The choice for the PP/CP complement is related to Reinhart's (2002) mapping principles according to which [-c-m] clusters (another semantically possible option here) in the presence of a [+c] cluster mark the verb with the [Acc] feature, which couldn't be checked with a PP/CP.

The fact that the nonagentive subject should be analyzed as a [+c] rather than as [-c-m] is supported by the fact that it cannot be realized as a *čto*-clause even though there is no semantic problem with it, as demonstrated by the felicity of (54a). This would be unexpected if the subject were [-c-m], whereas if it is [+c], unacceptability of (54b) will follow if in Russian *čto*-clauses cannot be external arguments.

- (54) a. V fiktivnom xaraktere sdelki sudej ubedilo
 in fictitious character.LOC transaction.GEN judges.ACC convinced
 to, čto oni ne predstavili nikakix dokumentov.
 it.NOM that they.NOM not presented any documents.GEN
 ‘The fact that they didn’t produce any documents convinced the judges of the
 fictitious nature of the transaction.’
- b. * V fiktivnom xaraktere sdelki sudej ubedilo, čto
 in fictitious character.LOC transaction.GEN judges.ACC convinces that
 oni ne predstavili nikakix dokumentov.
 they.NOM not presented any documents.GEN
 intended: ‘The fact that they didn’t produce any documents convinced the judges
 of the fictitious nature of the transaction.’

Since the nominative argument is always [+c], it will be expanded as [+c-m] in the nonagentive case and as [+c+m] in the agentive case. Consequently, the [-m] cluster can be freely expanded as [-c-m] and realized as a CP or a PP. The whole pattern for *ubedit* ‘convince’ is shown in (55).^{31 32}

- (55) a. Nom_[+c] → [+c+m] convince Acc_[-c+m] PP_{[-m] → [-c-m]} (agentive)
 b. Nom_[+c] → [+c+m] convince Acc_[-c+m] CP_{[-m] → [-c-m]} (agentive)
 c. Nom_[+c] → [+c-m] convince Acc_[-c+m] PP_{[-m] → [-c-m]} (non-agentive)
 d. Nom_[+c] → [+c-m] convince Acc_[-c+m] CP_{[-m] → [-c-m]} (non-agentive)

3.3. Animate/inanimate object alternation

Let’s now turn to the animate/inanimate object alternation. We will first discuss *zljitsja* ‘be angry’ and then *rugat* ‘criticize’.

The pattern displayed by *zljitsja* ‘be angry’ is given in (56), repeated. The crucial fact that we have to account for is why when the target argument is split into *na*-PP and a *za*-PP/CP, the former has to be animate. Another fact is why a *za*-PP co-occurring with an inanimate *na*-PP is slightly better than a CP.

- (56) a. Nom *angry na*-PP_{TARGET (INAN)} / CP
 b. Nom *angry na*-PP_{TARGET (ANIM)} *za*-PP_{TARGET (INAN)} / CP
 c. * Nom *angry na*-PP_{TARGET (INAN)} CP_{TARGET (INAN)}

³¹ Note that the fact that in (55c,d) [+c-m] cluster is realized as a nominative does not violate the condition in (43) because since there are no identical clusters at the interface between the system of concepts and the CS, Full Specification can apply after the mapping procedure, hence there will be no [+c-m] cluster at the point of mapping.

³² We have to assume that the choice of P is determined in the lexicon and that this should work in a conditional fashion, that is, if a cluster is realized as a PP, the P should be of a particular sort. I will assume this for the rest of the analyses taken up in this paper.

- d. ?? Nom *angry na-PP*_{TARGET (INAN)} *za-PP*_{TARGET(INAN)}

As usual, we have to start with providing the thematic structure for the verb. I will assume that in the basic argument structure, shown in (56a), *zlitsja* ‘be angry’ takes a subject experiencer ([-c+m]) and a target ([-c]). As I argued above, the three-place argument structure, shown in (56b), should be analyzed as a split of the [-c] role. Given the Non-Identity Constraint, the [-c] role will be split into [-c+m] and [-c-m]. Given the particular choice of prepositions, we have to assume that [-c+m] and [-c] map to *na-PP* and the [-c-m] maps to *za-PP*.

Now let’s see the predication for realization of arguments. In (57a) there is no split so the [-c] role can be realized as *na-PP* or a CP. When splitting occurs, the [-c+m] cluster can only be realized as *na-PP* given that a CP is not compatible with [+m] clusters for semantic reasons. As a result the derivations with an inanimate *na-PP* in (57d,e) will be ruled out and only the derivations with an animate *na-PP* in (57b,c) will be ruled in.

- (57) a. Nom_[-c+m] *angry na-PP*_{[-c] → [-c-m]} / CP_{[-c] → [-c-m]} (inanimate)
 b. Nom_[-c+m] *angry na-PP*_{[-c] → [-c+m]} CP_{[-c] → [-c-m]} (animate)
 c. Nom_[-c+m] *angry na-PP*_{[-c] → [-c+m]} *za-PP*_{[-c] → [-c-m]}. (animate)
 d. * Nom_[-c+m] *angry na-PP*_{[-c] → [-c-m]} CP_{[-c] → [-c+m]}. (inanimate)
 e. * Nom_[-c+m] *angry na-PP*_{[-c] → [-c-m]} *za-PP*_{[-c] → [-c+m]}. (inanimate)

We might wonder now about why *za-PP* is slightly less unacceptable than a CP, as shown in (56d). I would like to propose that this argument structure has a second analysis, namely one in which no split has taken place and where, consequently, the *za-PP* is actually not selected as an argument but rather attached as an adjunct and, consequently, not part of the lexical entry, as shown in (58a). I would like to assume that *za-PP* in this case is interpreted as the relation ‘responsible for’, which presumably can only be predicated of animate entities. If the argument realized as *na-PP* is inanimate, the sentence is infelicitous, as, for example (59b), repeated. This violation, however, is a relatively mild one because the argument realized as *na-PP* is not a syntactic argument of the predicate expressed by *za-PP*, which is syntactically a VP adjunct. Consequently, the animacy restriction is violated at a level distinct from the one in which arguments are interpreted as bearing particular theta-clusters. Crucially a *čto*-clause cannot be adjoined to the VP in the same fashion, hence CP don’t have the same rescue mechanism and yield significantly worse output, as shown in (59a), repeated.

- (58) a. ? Nom_[-c+m] *angry na-PP*_{[-c] → [-c-m]} *za-PP*. (inanimate)
 b. * Nom_[-c+m] *angry na-PP*_{[-c] → [-c-m]} CP. (inanimate)

- (59) a. * On *zlilsja* *na* *ee* *uprjamstvo*, *čto* *ono* *mešæet*
 he.NOM was angry at her stubbornness.ACC that it.NOM interferes
emu *žit’*.
 him.DAT live
 intended: ‘He was angry at her stubbornness because it interferes with his life.’
 b. ?? On *zlilsja* *na* *ee* *uprjamstvo* *za* *to*, *čto* *ono*
 he.NOM was angry at her stubbornness.acc for it.ACC that it.NOM
mešæet *emu* *žit’*.
 interferes him.DAT live
 intended: ‘He was angry at her stubbornness because it interferes with his life.’

Rugat’ ‘criticize’, which displays the pattern given in (60), repeated, receives essentially the same account as *zlitsja* ‘be angry’ with some minor differences.

- (60) a. Nom *criticize* Acc_{TARGET (INAN)}
 b. Nom *criticize* Acc_{TARGET (ANIM)} *za-PP*_{TARGET (INAN)} / CP
 c. ?? Nom *criticize* Acc_{TARGET (INAN)} *za-PP*_{TARGET (INAN)}
 d. * Nom *criticize* Acc_{TARGET (INAN)} CP_{TARGET (INAN)}

The thematic structure of the verb is as follows. It takes an agent ([+c+m]) and a target ([-c]) in the basic construction illustrated in (60a). In the three-place construction, given in (60b), the target argument is split into two and subsequently expanded as [-c+m] and [-c-m]. Note that by the mapping generalization, the verb gets [Acc] feature, which will be checked by one of the arguments. As in the case of *zlitsja* ‘be angry’, we have to assume that the [-c-m] cluster is lexically specified as *za-PP*. This assumption will render only the derivations with an animate accusative argument available, as in (61a,b), whereas the derivation with an inanimate argument in (61c,d) will be blocked. (61e) will derive the construction with no split.³³ Just as with *zlitsja* ‘be angry’, the *za-PP* can also be attached as an adjunct thus escaping the syntactic requirement on animacy.

- (61) a. Nom_[+c+m] *criticize* Acc_{[-c] → [-c+m]} CP_{[-c] → [-c-m]} (animate)
 b. Nom_[+c+m] *criticize* Acc_{[-c] → [-c+m]} *za-PP*_{[-c] → [-c-m]} (animate)
 c. * Nom_[+c+m] *criticize* Acc_{[-c] → [-c-m]} CP_{[-c] → [-c+m]} (inanimate)
 d. * Nom_[+c+m] *criticize* Acc_{[-c] → [-c-m]} *za-PP*_{[-c] → [-c+m]} (inanimate)
 e. Nom_[+c+m] *criticize* Acc_{[-c] → [-c-m]} (inanimate)

4. Further predictions

Before concluding the paper, I would like to show that the theta-theoretic account argued for in this paper makes some correct predictions regarding the distribution of sentential complements more generally. Since a CP is semantically incompatible with [\setminus +m], it can only correspond to clusters [-c-m], [-m], [-c], or [+c].³⁴ Putting aside the last case, Full Specification and the Non-Identity Constraint predict that a CP will always end up interpreted as [-c-m]. This in turn implies that a CP will never be able to co-occur with another argument that is [-c-m] or will be expanded as [-c-m]. Thus we can formulate the condition in (62).

- (62) If a predicate involving a [-c-m] cluster or a cluster that will be interpreted as [-c-m] takes a CP as its internal argument, the CP has to realize that cluster.

This condition correctly predicts that a *that*-clause is impossible in the copy raising construction, illustrated in (63). The reason is that the clause will fail to be thematically distinguished from the subject in (63b).

³³ Given that the [-c] will be interpreted after the mapping procedure (see footnote 30), we will have to assume that the accusative argument is inherent and hence oblique so that it does not violate the conditions in (36).

³⁴ It is appatently possible in English, as, for example, in (i), but not in Russian.

(i) That John has blood on his hands proves that Mary is innocent. (Emonds 1970:92)

In contrast, (63a) is fine because the CP is embedded in an adjunct and hence exempt from the conditions on the co-occurrence of feature clusters.^{35 36 37} The same point can be made on the basis of the prolepsis construction illustrated in (64), where the proleptic argument cannot be accusative, as shown in (64b), but has to be embedded in a PP, as in (65a).³⁸

- (63) a. Richard seems like/as if/as though he is in trouble.
 b. * Richards seems that he is in trouble.
- (64) a. He knows of Richard that he is in trouble.
 b. * He knows Richard that he is in trouble.

Now one might object that the possibility of having a clause in the (b) examples in (63)–(64) never arises because there is no theta-role for it. Thus these are simply theta-criterion violations.³⁹ The problem with these examples, however, is more general. There are no verbs SEEM and KNOW that would appear in the argument structure of the (b) examples and have the meaning along the lines of the (a) examples, as shown in (65).⁴⁰

- (65) a. * Richards SEEMS that he is in trouble.
 b. * He KNOWS Richard that he is in trouble.

5. Conclusion

In this paper I looked at the distribution of CP complements in Russian and argued that it is partly determined by the thematic structure of the predicate and thus cannot be reduced to s-selection. I proposed that the failure of a CP complement to appear in a given argument structure is a by-product of various principles of the Theta system such as Marelj's (2004) Full Specifications of theta-clusters, mapping generalizations concerning particular theta-clusters and the inability of CPs to function as adjuncts.

Along the way, I proposed several modification of Reinhart's Theta system and Marelj's (2004) system. Among other things I argued against Reinhart's (2002) and Pesetsky's (1995)

³⁵ See Marelj (2004:79ff) on that point.

³⁶ The reader is referred to Landau (2010) for the discussion of the copy raising construction.

³⁷ It has been suggested by Heycock (1994) that examples like (72b) are bad because the clause fails to get case. The problem with this account is that it is not clear how to handle numerous cases of clauses appearing in seemingly caseless positions documented by Bošković (1995).

³⁸ The reader is referred to Davies (2005) for the discussion of the prolepsis construction.

³⁹ Given the preceding discussion, it is fairly obvious that the copy raising and prolepsis construction can be viewed as other instances of the role splitting construction. In view of the complexity of the data and space limitations, I will not attempt at such an analysis here.

⁴⁰ One relevant example here is *podozrevat* 'suspect'. It has roughly the meaning of (65b) and takes an accusative argument and a propositional argument. Yet a *čto*-clause can never realize the propositional argument unless it is embedded under a PP, as shown in (ia). Given that the accusative object is [-c-m], the failure of a CP to be realized follows from (62), the necessary assumption being that the PP is an adjunct. One argument in favor of that is that it can be predicated of nouns like 'idea' as in (ib).

- (i) a. Oni podozrevajut Ivana (* v tom), čto on ograbil bank.
 they.NOM suspect John.ACC in it.LOC that he.NOM robbed bank.ACC
 'They suspect him that he robbed a bank.'
- b. Ix ideja v tom, čto on ograbil bank.
 their idea.NOM in it.LOC that he.NOM robbed bank.ACC .
 'Their idea is that he robbed a bank.'

analysis of (at least some) object experiencer verbs and proposed that Marelj's (2004) Full Specification applies in a distributed fashion during the derivation.

Apart from the distribution of sentential complements, I dealt to a considerable extent with what I referred to as the role splitting construction. I argued that this mechanism should be available in the Theta-system and showed how it might work. I leave the study of possible implications and scope of that mechanism for another occasion.

I also leave other questions for future research, such as the limits of cross-linguistic variation and the variation among different clause types such as infinitives and subjunctive complements.

Mikhail Knyazev
Utrecht Institute of Linguistics OTS
misha.knjazev@gmail.com

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Identity effects in Uruguayan Spanish

Violeta Martínez-Paricio

This paper describes a case of paradigm leveling recently attested in the present subjunctive of a Spanish dialect spoken in Uruguay. With the aim of shedding some light on the type/nature of identity effects in inflectional paradigms, the paper explores the phonological representations and properties found in the leveled paradigm. Additionally, it reviews some of the shortcomings of models that place most of the burden of explanation for analogical changes on the phonological grammar. In contrast to such models, this paper suggests that the difference between the innovative dialect and standard dialects without leveling does not rely on their phonology, but rather in the choice of a morphological exponent.

1. Introduction: identity effects in morphology

It is cross-linguistically common to find identity effects (i.e. phonological similarity relations) among morphologically related forms. This is true not only for derivational morphology but also for inflectional morphology. Traditionally, the specific way in which certain forms influence others has been assumed to diverge in derivation and inflection. However, recent research has questioned this. Whereas derived forms have usually been assumed to have clear ‘bases of affixation’, there is much debate on whether inflected forms are constructed from a single base (Kenstowicz 1996; Benua 1997; Albright 2002, 2008a; Bachrach & Nevins 2008), or if they exhibit a more egalitarian structure with all forms in the paradigm affecting each other in a more symmetrical way (Burzio 1996; Steriade 2000; McCarthy 2005). Additionally, it is still an open question whether a morphological base must correspond to a single surface form or, in contrast, it is an abstract underlying representation from which the rest of the paradigm can be derived without necessarily having a surface correspondent. Finally, morphological bases are often equated with the most phonologically/morphologically unmarked member within a paradigm. However, it is not always obvious what it means to be universally unmarked or why bases should be selected only on the basis of markedness (for discussion, see Bachrach & Nevins 2008).

With the aim of contributing to the ongoing debate of identity effects in inflectional paradigms, this paper presents new dialectal data from Spanish verbal morphophonology. In particular, it focuses on a puzzling case of paradigm leveling in the present subjunctive of some speakers of Uruguayan Spanish, whereby a phonologically marked form has been

extended to all members in the paradigm. In addition to the descriptive contribution, this paper attempts to grasp a better account of identity effects in the Spanish verbal paradigm. Firstly, by exploring in detail the phonological representations and properties involved in the innovative pattern of Uruguayan Spanish, we aim at deepening our understanding of the type of phonological relations that exist within members of the same inflectional paradigm. Secondly, the new data is used to empirically test some of the predictions of two morphophonological models dealing with identity effects in inflectional paradigms: (i) McCarthy's Optimal Paradigms model (henceforth, OP; McCarthy 2005) and (ii) Albright's Base Priority model (henceforth, BP; Albright 2002, 2008). Within these models, identity effects in inflectional paradigms are the result of a high-ranked phonological correspondence requirement enforcing similarity between members of the same paradigm. In the OP model, this requirement is symmetrical (i.e. all surface forms have a potential influence on each other), whereas the BP model is an asymmetrical requirement (i.e. one surface base has priority over the rest and may influence their shape). Although the two models bring clear insights into the properties of leveling in non-standard Uruguayan Spanish (henceforth, NUS), this paper shows that they also encounter some problems in accounting for the direction of leveling. This is especially due to the burden of analogical change being placed on the phonological grammar, i.e. leveling in these models results from high-ranking a constraint enforcing identity between members of the same paradigm. I argue that the main difference between the non-leveling varieties of Spanish and the variety of Uruguayan Spanish with leveling is not due to a disparity in their phonological systems. On the contrary, I argue that the phonological grammar of the two dialects is identical. The difference between them crucially relies on the morphosyntactic exponent of the present subjunctive in each dialect (i.e. the input to the phonology). Finally, the data presented here is of particular interest because it sheds light on a classic puzzle in Spanish morphophonology: the stress-driven alternation between /jé, wé/ and /e, o/ (e.g. *b[wé]no* vs. *b[o]ndád*, *b[o]ndadóso*). In particular, the new data seems to verify Bermúdez-Otero's hypothesis, which suggests that diphthongization in Spanish is a property of stems, rather than roots or words (Bermúdez-Otero 2011, 2013).

The paper is organized as follows. Section 2 briefly discusses the phonology and morphology of the Spanish present subjunctive and describes the innovative pattern attested in some speakers of Uruguayan Spanish. In section 3 it is proposed that this variety shows leveling because speakers have reanalysed a phonologically derived property (i.e. stress) as part of the morphology of the present subjunctive. In particular, it is suggested that, whereas standard Uruguayan Spanish (henceforth, US) assign stress in the present subjunctive by some phonological default rule or general hierarchy of constraints, in NUS stress must be stored in the lexical entry as a part of the morphological exponent of the present subjunctive. This type of *morphologization* is frequently attested in the history of languages (Bermúdez-Otero 2008; Bermúdez-Otero & Trousdale 2012). Section 4 presents two alternative accounts of the analogical change. The first one is couched within McCarthy's OP model (McCarthy 2005) and the second one in Albright's BP model (2002). This section reviews the main predictions of the models, highlighting some of the challenges they encounter when accounting for the NUS data. Section 5 summaries the main conclusions of this study.

2. The Spanish Present Subjunctive

The Present Subjunctive (PresSubj) in Uruguayan Spanish (US) contains five different forms. This is illustrated in (1) with three regular verbs from each of the three conjugation classes. The thematic vowel preceding the infinitive marker *-r* indicates the affiliation to a specific conjugation class. The first conjugation contains the thematic vowel *-a* in the infinitive, the second conjugation has an *-e*, and the thematic vowel of the third conjugation is *-i* (the stressed syllable is highlighted in bold face, syllable boundaries are indicated by dots and the hyphen separates the root from the rest of affixes, including the theme vowel and the inflectional endings). Note that the present subjunctive displays a clear contrast between the unstressed root in the first person plural (1pl, in white) and the rest of the forms in the paradigm (1sg, 2sg, 3sg, 3pl, shaded)¹:

(1) Present Subjunctive in regular verbs in Standard Uruguayan Spanish

	I Conjugation <i>am-ar</i> 'to love'	II Conjugation <i>com-er</i> 'to eat'	III Conjugation <i>viv-ir</i> 'to live'
1sg.	á.m-e	có.m-a	ví.v-a
2sg.	á.m-es	có.m-as	ví.v -as
3sg.	á.m-e	cóm -a	ví.v -a
1pl.	a.m-é.mos	co.m -á.mos	vi.v-á.mos
3pl.	á.m-en	có.m -an	ví.v -an

Interestingly, in irregular verbs, segmental alternations that are stress dependent also participate in this type of contrast (i.e. 1pl vs. 1sg, 2sg, 3pl, 3sg). Namely, the stressed roots in the 1sg, 2sg, 3sg and 3pl have the diphthongs [jé, wé], whereas the unstressed root in the 1pl has a mid vowel [e, o]. This is exemplified in (2) with the irregular verb *pod-ér* 'can, be able to', from the second conjugation:

(2) Present Subjunctive in irregular verbs in Standard Uruguayan Spanish

	II Conjugation: <i>pod-ér</i> 'can, to be able to'
1sg.	p[wé].d-e
2sg.	p[wé].d-es
3sg.	p[wé].d-e
1pl.	p[o].d-é.mos
3pl.	p[wé].d-en

From the data in table (1) and (2) we can observe that US, as the vast majority of Spanish dialects, does not contain a specific grammatical form for the 2nd plural. This is not the case in Northern-Central Peninsular Spanish, where the verbal paradigm contains a specific grammatical form for the 2nd person of the plural:

¹ Throughout the paper, I will use the abbreviations 1sg, 2sg, 3sg, 3pl to refer to the first person singular, second person singular and third person singular and plural respectively.

(3) *Present Subjunctive in regular verbs in Northern-Central Peninsular Spanish*

	I Conjugation <i>am-ar</i> 'to love'	II Conjugation <i>com-er</i> 'to eat'	III Conjugation <i>viv-ir</i> 'to live'
1sg.	á.m-e	có.m-a	ví.v-a
2sg.	á.m-es	có.m-as	ví.v -as
3sg.	á.m-e	cóm -a	ví.v -a
1pl.	a.m-é.mos	co.m -á.mos	vi.v-á.mos
2pl.	a.m-éis	co.m -áis	vi.v-áis
3pl.	á.m-en	có.m -an	ví.v -an

This dialectal difference is due to a difference in the pronominal systems of Spanish dialects. Whereas speakers of Northern-Central Peninsular Spanish use the subject pronoun *vosotros* 'you pl', which behaves referentially and grammatically as a second person plural, in the rest of the dialects this pronoun has disappeared. To refer to a 2pl subject pronoun, speakers use the form *ustedes* 'you pl' instead. Strikingly, although the pronoun *ustedes* refers to a second person plural, it grammatically behaves as a 3pl. That is, in cases of cliticization or the use of a verbal form, it always enforces third person plural agreement. This is illustrated in (4) and (5), where the two dialects choose a different clitic to substitute a referential 2nd plural object (4a vs. 5a) (for ease of presentation, the examples contain in square brackets the preposition and pronoun that the clitic is substituting):

(4) *Northern-Central Peninsular Spanish*

a. **Os** he visto [a vosotros]
CLOBJ-2pl. see-1SGPRES PERF PREP OBJ.PRON2PL
 'I have seen you (pl).'

b. **Los** he visto [a ellos]
CLOBJ-3pl. see-1SGPRES PERF PREP OBJ.PRON3PL
 'I have seen them.'

(5) *Rest of Spanish dialects*

a. **Los** he visto [a ustedes]
CLOBJ-3pl. see-1SGPRES PERF PREP OBJ.PRON2PL
 'I have seen you (pl).'

b. **Los** he visto [a ellos]
CLOBJ-3pl. see-1SGPRES PERF PREP OBJ.PRON3PL
 'I have seen them'

This has clear consequences in the verbal paradigm of these dialects. As opposed to Northern-Central Peninsular dialects, most Spanish dialects lack a specific form for the 2pl. As a consequence of this, the contrast between stressed and unstressed roots is weaker in these dialects. Since this paper is concerned with a variety of Uruguayan Spanish and, thus, one without a specific verbal form for the 2pl, the form used to refer to 2pl persons in Northern-

Central Peninsular Spanish is left out from the examples and tables. Recall that when speakers of Uruguayan Spanish want to refer to a 2pl, they will use the form of the 3pl.²

2.2. Paradigm leveling in non standard Uruguayan Spanish (NUS)

The case of leveling reported here has been attested in some speakers of a non standard variety of Uruguayan speakers. In this variety, the contrast between the 1pl and the rest of the forms is lost, and stressed roots have been generalized to all forms of regular and irregular verbs (see (6)). In the latter, stress dependent alternations, such as diphthongization have been also extended to the 1pl (7):

(6) Present Subjunctive in regular verbs in NUS

	<i>am-ár</i> 'to love'	<i>com-ér</i> 'to eat'	<i>viv-ír</i> 'to live'
1sg.	á.m-e	có.m-a	ví.v-a
2sg.	á.m-es	có.m-as	ví.v -as
3sg.	á.m-e	cóm -a	ví.v -a
1pl.	á.m-e.mos (a.m-émos)	có.m-a.mos (eø.m-ámos)	ví.v-amos (vi.v-ámos)
3pl.	á.m-en	có.m-an	ví.v -an

(7) Irregular verbs

<i>pod-ér</i> 'can, to be able'
p[wé].d-a
p[wé].d-as
p[wé].d-a
p[wé].d-amos (po.d-á.mos)
p[wé].d-an

Speakers who show leveling are generally associated with those who have not had much access to education or have not constantly been exposed to the standard. Additionally, it seems that speakers of the standard are aware of this negative nuance and try to avoid it.³ The precise extension (register and geographic areas) of the phenomenon is well beyond the scope of this paper: future investigation of the negative associations of this phenomenon remains a topic ripe for sociolinguistic research.⁴

Examples in (8) contain data uttered by some Uruguayan speakers exemplifying the leveled variety. Both (8a) and (8b) exhibit the new form for the 1pl in two irregular verbs:

² It is important to highlight that the fact that *ustedes* is combined with verbs in their 3pl form should not be analysed as a case of syncretism, by which one form (the 3pl form, e.g. *cóman*, *pwédan*, *vívan*, *ámen*) covers two different meanings (2pl and 3pl). Quite the contrary, the cliticization diagnostic presented in (4)-(5) makes it clear that the pronoun *ustedes* is referentially a 2pl, but grammatically a 3pl.

³ As an anecdote of this, there is a group on www.facebook.com which proscribes the innovative forms in NUS ('Se dice podamos, no puédamos' – 'We must say podamos and not puédamos').

⁴ The same type of leveling has been attested in other Spanish dialects, not only in Latin-America (areas of Cuba and Mexico), but also in areas of the West of Spain (Enguita Utrilla 2010:292), Andalusian Spanish (Mondéjar Cumpián 1970) and some dialects of Chicano Spanish (Reyes 1974)

- (8) a. *Espero que mañana p[wé]damos [pedámos] responder con el compañero Danilo, porque el sábado tenemos que tomar una decisión*
 ‘I hope that tomorrow we can negotiate with our colleague Danilo, because we must make a decision on Saturday.’ (from the journal *El País*. José Mújica, President of Uruguay, Montevideo)
- b. *La terminamos cuando v[wé]lvamos [volvamos]*
 ‘We will finish it once we are back.’ (speaker from Nueva Palmira)

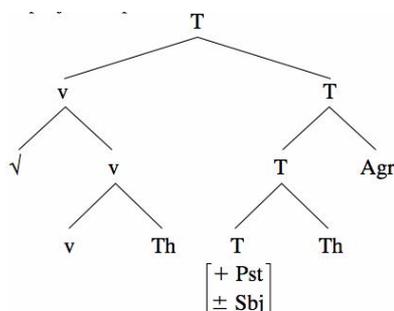
Instead of having an unstressed root with a mid vowel (e.g. *pod-*, *volv-*), the stressed diphthong has been extended to the 1pl. Since leveling in NUS is closely related to stress and the diphthongization process in Spanish, the next subsection briefly discusses some general considerations regarding verbal stress and the diphthong-vowel alternation in Spanish.

2.2. Verbal stress

One can find different proposals in the literature with respect to the location of stress in the Spanish verbal domain. These proposals range from analyses that view stress as purely morphosyntactic — i.e. stress is computed by looking only at the syntax of the word — (for a recent morphosyntactic proposal and references see Oltra-Massuet & Arregi 2005) to approaches that compute stress based on the weight of the word-final syllable (Bermúdez-Otero 2013). In either case, some kind of lexical specification or additional ad-hoc rule applying after the general stress algorithm must be posited, since stress cannot always be predicted. For instance, Oltra-Massuet & Arregi (2005), whose analysis is couched in the Distributed Morphology framework, provide a general algorithm that locates stress before the tense affix (Oltra-Massuet & Arregi 2005:49). This algorithm (exemplified below in 9b), together with some specific assumptions about the morphological structure of Spanish verbs, correctly locates stress in most of the cases. This is illustrated in (9), with an example from the imperfect indicative, which exhibits stress in the theme vowel of every form in the paradigm (i.e. before the tense affix):

(9) Imperfect Indicative

a. Morphological structure



b. Examples of the linearization

<u>I Conj.</u> <i>amábas</i>	[am- á] -ba] -s]
<i>love-2SGIMPIND</i>	Rt -TV- Tense-Agr
<u>II Conj.</u> <i>comías</i>	[com- í] -a] -s]
<i>eat-2SGIMPIND</i>	Rt -TV- Tense-Agr
<u>III Conj.</u> <i>vivías</i>	[viv- í] -a] -s]
<i>live-2SGIMPIND</i>	Rt -TV-Tense-Agr

As mentioned above, the algorithm has trouble in accounting for the stress patterns in some verbal forms. Namely, it cannot predict stress in the 1sg, 2sg, 3sg and 3pl of the indicative and subjunctive present tenses, as well as some forms in the imperative, which has been

analysed as a present by some (see Zagona 1990). Although stress in the 1pl and 2pl is correctly predicted (e.g. 1pl present indicative: $[am]_{Rt-\acute{a}}]_{TV-mos}]_{Tense/Agr}$, 1pl present subjunctive: $[am]_{Rt-\acute{e}}]_{TV-mos}]_{Tense/Agr}$), an additional rule that retracts stress must be posited in order to get the correct location of stress in the rest of the forms (10a). The application of the rule in the 2sg present indicative is illustrated in (10b). As can be seen from this example, the algorithm incorrectly locates stress in the final syllable of the 2sg present indicative. Then, a stress deletion rule applies, which deletes a word final stress (10a). In order to avoid word-final stress, this rule has the effect of retracting the position of stress one syllable to the left:

(10) *Present tenses (Oltra-Massuet & Arregi 2005:61)*

a. Stress Deletion (in present tense)

$x \rightarrow x \text{ ____ }) \#$

b. *After Stress Algorithm*

2Sg present indicative: *partés
 Line 1 x
 Line 0 x x)
 String p a r t Ø e s
 Syntax [√ [v Th]] T/Agr

c. *After Stress Deletion Rule: pártés*

2Sg present indicative
 Line 1 x
 Line 0 x .)
 String p a r t Ø e s
 Syntax [√ [v Th]] T/Agr

There are two possible explanations that can account for the new forms in the 1pl present subjunctive of NUS (e.g. *ámemos*, *cómamos* and *vívamos*). The first one, which is sketched out in a footnote in Oltra-Massuet and Arregi (2005:60), is to assume that the morphological structure of the present subjunctive in the dialects that have antepenult stress in the 1pl and 2pl, like NUS, is different: ‘We tentatively assume that the theme vowel following the root in the present subjunctive is the one adjoined to T in those dialects, instead of being the one adjoined to v, as we have proposed for Iberian Spanish’ (Oltra-Massuet & Arregi 2005:60). However, it is not clear what the motivation is for adjoining the theme vowel in these dialects to T, instead of v. A second option, following the same strategy that accounts for the retraction of stress in some forms in the present, would be to reformulate the rule in (10a) in a way that it also applies to the 1pl in dialects like NUS, retracting its stress, although it is not word-final. Thus, after the algorithm has applied, a rule retracting stress in those forms would get the innovative forms in NUS (e.g. *amémos* > *ámemos*). Such a rule would correctly relocate stress in regular verbs (e.g. *amémos* (US) > *ámemos* (NUS)). However, this mechanism encounters some problems when trying to generate the 1pl in irregular verbs (see § 3 for further details).

Within Bermúdez-Otero's (2013) approach to verbal stress, verbs show default stress. That is, following the general tendency in nominal forms, verbs have penultimate stress when the word ends in a vowel or a consonant that is part of an inflectional affix (e.g. *ámo* ‘love.1SG.PRESENT.INDICATIVE’ *amába* ‘love.1SG.IMPERFECTIVEPAST.INDICATIVE’, *amába*<n> ‘love.3PL.IMPERFECTIVEPAST.INDICATIVE’) and final stress when the word ends in a falling diphthong or consonant that is not an inflectional affix (e.g. *am[áj]*<s> ‘love.2PL.PRESENT.INDICATIVE’). However, default stress can be overridden if the verbal morphological entry contains a prespecification with the particular location of stress. Thus, within this account, a general hierarchy of constraints gets default stress, whereas deviance from default results by high-ranking a faithfulness constraint to an underlying specification of stress. For instance, according to Bermúdez-Otero, the presence of an underlying accent on

the theme vowel of verbs can be easily diagnosed in the past imperfective tenses: all person and number forms bear stress on the theme vowel, with the falling diphthong in the final syllable of the second person plural unexpectedly failing to attract stress: *am-á-bais* (2plural) (Bermúdez-Otero 2013). Additionally, the existence of minimal pairs within the verbal paradigm provides further support for the need to prespecify stress in some forms (e.g. *llégue* ‘arrive.3SG.PRESENTSUBJUNCTIVE’ vs. *llegué* ‘arrive.1SG.PERFECTIVEPAST.INDICATIVE’; *cánto* ‘sing.1SG.PRESENT.INDICATIVE’ vs. *cantó* ‘sing.3SG.PERFECTIVEPAST.INDICATIVE’). Within this model, the present subjunctive of standard varieties of Spanish exhibits default stress (i.e. penultimate). The new form in the 1pl of NUS with antepenultimate stress (i.e. non-default) should contain, then, an underlying accent specified in the input to the phonology, which permits it to escape from default stress. This proposal is presented in further detail in § 3.

To conclude this section, it should be noted that no matter what analysis one assumes for Spanish verbal stress — whether one adopts a morphosyntactic approach to stress, or a metrical view of the facts — some kind of lexical marking or additional rule is needed in order to correctly locate stress in all the forms in the verbal domain.

2.3. Diphthongization

The stress driven alternation between diphthongs [jé, wé] and mid vowels [e, o] is not specific to the verbal domain (see (2) above) but is also present in nominal forms (e.g. *b[wé]no* ‘good’ vs. *b[o]n.dád* ‘goodness’, *b[o]n.da.dó.so* ‘kind’; *cal[jé]nte* ‘hot’ vs. *cal[e]ntadór* ‘heater’). This alternation is not completely predictable, since there are non alternating diphthongs (*qu[jé]to* ‘quiet’ ~ *qu[je]túd* ‘calm’) and non alternating mid-vowels (*qu[é]so* ‘cheese’ ~ *qu[e]sería* ‘cheese house’) (Bermúdez-Otero 2006, 2011; Ohannesian & Pons 2009). Therefore, diphthongization has been analysed as a case of allomorphy that involves phonological selection between listed allomorphs (Kager 1996; Mascaró 1996; McCarthy 2002; Rubach & Booij 2001; Bermúdez-Otero 2006). That is, ‘the phonological constraint hierarchy preserves the quality of input vowels, but, when given the choice, favours diphthongs in tonic syllables and monophthongs elsewhere’ (Bermúdez-Otero 2006:285). The following tableau from Bermúdez-Otero (2006) illustrates this fact. As can be seen from the evaluation of the two first inputs, when there is an option of choosing an allomorph, the hierarchy selects the mid vowels in unstressed positions, and the diphthongs in stressed positions (e.g. *p[wé]rta* ‘door’ vs. *p[o]rtéro* ‘doorman, porter’). When there are no listed allomorphs, as in *p[ó]zo* ‘well’ and *p[o]céro* ‘person who works, builds or cleans wells’, the high-ranked faithfulness constraint preserves the vowel in the input.⁵

⁵ There are also cases of overapplication, such as *p[wé]rtecíta* ‘door-DIM’ where the diphthong appears in unstressed position. This and similar cases can be accounted for by introducing constraints on intraparadigmatic pressures in phonology (Ohannesian & Pons 2009) or within a Stratal approach to the grammar, where some suffixes such as the diminutive are considered to be word level and, thus, applying after the stem level diphthongization process (Bermúdez-Otero 2006).

(11) Phonological selection of listed allomorphs (Bermúdez-Otero 2006:285)

morphology	phonology		IDENT	TONIC→ DIPHTHONGAL	*DIPHTHONG
	input	output			
[p{o,we}rt-a]	/port-a/	[pwér.ta]	*!		*
		[pór.ta]		*!	
	↻ /pwert-a/	↻ [pwér.ta]			*
		↻ [pór.ta]	*!	*	
[[p{o,we}rt-a]er-o]	↻ /port-a-er-o/	[pwer.té.ro]	*!	(*)	*
		↻ [por.té.ro]		(*)	
	/pwert-a-er-o/	[pwer.té.ro]		(*)	*!
		↻ [por.té.ro]	*!	(*)	
[poθ-o]	/poθ-o/	[pwé.θo]	*!		*
		↻ [pó.θo]		*	
[[poθ-o]er-o]	/poθ-o-er-o/	[pwe.θé.ro]	*!	(*)	*
		↻ [po.θé.ro]		(*)	

A similar approach can be taken to account for diphthongization in the verbal domain. That is, it can be assumed that irregular verbs contain at least two listed allomorphs and the phonological grammar selects the appropriate one depending on the tonicity of the syllable. In that sense, the forms of the 1pl present subjunctive in US (e.g. *p[o]dámos* ‘can.1PL.PRESENT.SUBJUNCTIVE’) and the leveled forms in NUS (e.g. *p[wé]damos* ‘can.1PL.PRESENT.SUBJUNCTIVE’) both respect the phonological grammar of the languages. This idea is explored in the next section.

3. Restructuring an underlying form

Following Bermúdez-Otero (2008) and much of the existing work on phonological change, the innovation attested in the 1pl present subjunctive in NUS is interpreted here as an instance of reanalysis. In particular, it is assumed that the change in the stress pattern in the 1pl present subjunctive illustrates a process of *morphologization*. That is, a property that was originally derived in the phonology (i.e. stress, see § 2), is now given by the morphological exponent of the present tense of the subjunctive. More specifically, NUS speakers have equated stressed roots with present subjunctive, therefore, restructuring the underlying form of this tense. This type of reanalysis, by which a phonological property is incorporated into the morphological exponent of a given category, is frequent in the life of phonological processes (Bermúdez-Otero & Trousdale 2012).

A similar type of change was already attested in the history of Spanish verbs. Take the case of the Latin imperfect indicative (stressed vowel are highlighted in boldface) (see 12). In Latin, the present imperfect indicative showed a contrast between stressed (1sg, 2sg, 3sg, 3pl) and unstressed roots (1pl, 2pl), just as the present subjunctive in standard varieties of Spanish. Later, the 1pl and 2pl changed their default penultimate stress to the antepenult position, in order to have columnar stress, i.e. stress falls in the same affix in all the members of the paradigm (Penny 1991). This is illustrated in (12) with the verb *cantar* ‘sing’:

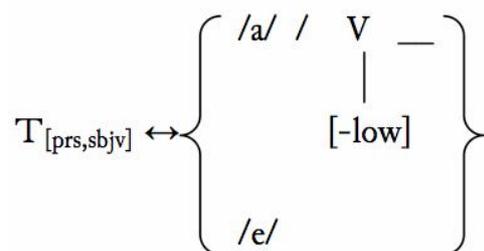
(12) a. *Latin Imperfective past Indicative* b. *Spanish Imperfective past indicative*

1sg	CANTÁBAM			cantába
2sg	CANTÁBAS			cantábas
3sg	CANTÁBA (T)			cantába
1pl	CANTABÁMUS	>> stress shift >>		cantábamos
2pl	CANTABÁTIS	>> stress shift >>		cantábais
3pl	CANTÁBANT			cantában

The 1pl and 2pl forms of this tense retracted their stress from penultimate to antepenultimate syllable in order to regularize the position of the accent in all the forms of the paradigm. Therefore, forms like CANTABÁMUS (1pl), CANTABÁTIS (2pl) underwent a stress-shift and became *cantábamos* and *cantábais* in Spanish (Penny 1991:168). The stress in *cantábamos* ('sing.1PLIMPERFECTIVE.PAST.IND') and *cantábais* ('sing.2PL.IMPERFECTIVE.PAST.IND') is non default and, thus, it must be specified in the underlying form. This can be done within the *Generalized Nonlinear Affixation* theory (Bermúdez-Otero 2012), whereby the underlying form of allomorphs can consist of segmental and prosodic material. Thus, together with /ba/ (i.e. the allomorph for the first conjugation: *cant-á-ba* 'sing-1SGIMPERFECTIVEPASTIND') and /a/ (i.e. the allomorph for the 2nd and 3rd conjugation: *com-í-a* 'eat-1SGIMPERFECTIVE.PAST.IND' *viv-í-a* 'live-1SGIMPERFECTIVE.PAST.IND'), there is a prosodic specification consisting of the head of the prosodic word. Furthermore, this specification contains alignment information indicating that the syllable at the head of the foot must dominate the last segment of the stem (Bermúdez-Otero 2008). This explains why stress always falls on the theme vowel in the imperfect indicative.

Following this type of interpretation of the facts, a similar account could be given for the case of paradigm leveling in the present subjunctive in NUS. Speakers of US and the rest of Spanish dialects that do not exhibit leveling assign default stress to all the forms in the paradigm (i.e. penultimate: e.g. 1pl: *amémos* 'we love.SUBJ', *comámos* 'we eat.SUBJ', *podámos* 'we can.SUBJ') (see 13b, below). The input to the phonology does not contain any prosodic specification; it only contains segmental information indicating that after non low vowels (i.e. after /e/ or /i/, which are the theme vowels of the second and third conjugation), the allomorph selected for the present subjunctive is /a/ (e.g. *comamos* 'we eat.SUBJ', *vivamos* 'we live.SUBJ'); elsewhere (i.e. in verbs of the first conjugation, where the theme vowel is /a/), the selected allomorph is /e/ (e.g. *amemos* 'we love.SUBJ') (see 13). Assuming Spanish stores stems with their theme vowels (Bermúdez-Otero 2008, 2013), this gets the right results in US:

(13) Morphological exponent of the present subjunctive in US

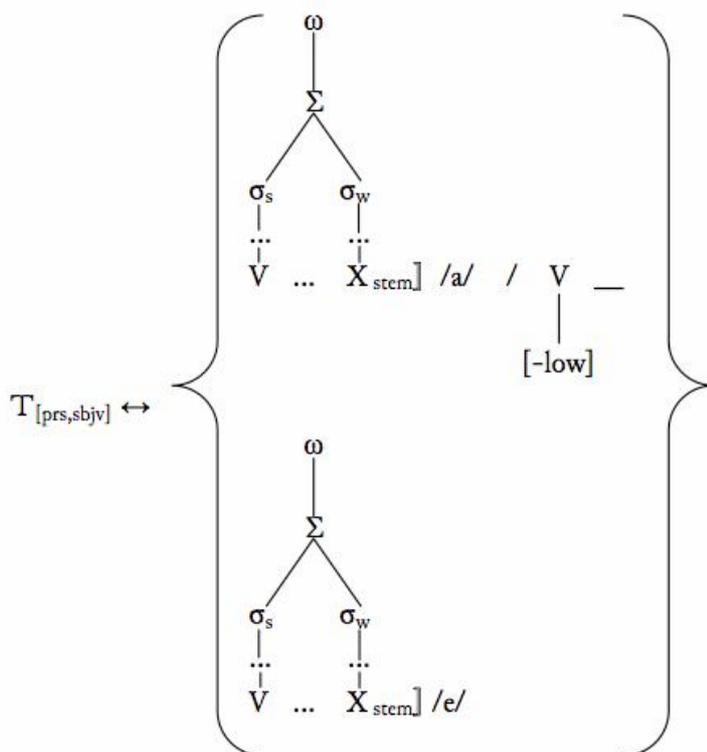


Spanish has a rule that deletes stem vowels that are not stressed (see Bermúdez-Otero 2006, 2008), which ensures that forms like $[[am-a]_{TV-e}]_{T-mos}]_{Agr}$ and $[com-e]_{TV} -a]_{T} mos]_{Agr}$ surface as *amemos* and *comamos* (Bermúdez-Otero 2008)

- (14) love.1pl.pres.sbjv eat.1pl.pres.sbjv
 UR $[[am-a]-e-mos]]$ $[com-e] -amos]$
 stem-final vowel deletion
 SR [a.mé.mos] [co.má.mos]

In contrast, the underlying form of NUS has been reanalysed and now, in addition to the segmental specification, it contains a prosodic specification ensuring that stress always falls on the last vowel of the root (i.e. in all the forms). This is done by specifying a metrical foot aligned with the right edge of the stem, as illustrated below in (15)⁶:

- (15) Morphological exponent of the present subjunctive in NUS



Frequency must have played an important role in this type of reanalysis. Since NUS does not have a specific form for the 2pl and, thus, most of the forms in the present subjunctive have stressed roots (1sg, 2sg, 3sg, 3pl), it is not surprising that this pattern has been incorporated into the morpheme of the present subjunctive. Hence, also being extended to the only form that diverged from the rest (i.e. the 1pl).

⁶ I am indebted to Ricardo Bermúdez-Otero for his insightful comments and suggestions on the possible ways to represent the underlying stress in this variety, and the morphological exponents of the present subjunctive in the two varieties, standard and non-standard.

Furthermore, under this account, the fact that diphthongized forms have been leveled in irregular verbs (e.g. *podámos* > *pwédamos*) is seen as a clear consequence of the phonology of Spanish, where diphthongs are preferred in stress positions. Diphthongization in irregular verbs is, therefore, analysed here in a similar way as the process of diphthongization in nominal forms. That is, the alternation between diphthongs and mid vowels is a process of allomorph selection. When the grammar has the option of choosing between two allomorphs, one with a diphthong and one with a mid vowel, it will prefer the diphthong in stressed positions and the mid vowel in unstressed positions (see (16) vs. (17) below). Specifically, I argue that stress in the present subjunctive is not assigned in the phonology of NUS speakers. By contrast, it is part of the morphosyntactic exponents of the present subjunctive in the input to the phonology (see (15) and (17) below). In US speakers, however, the input to the phonology does not contain any specification regarding the prosodic structure of the present subjunctive (see (16)) and, thus, penultimate stress arises. Since the antepenultimate syllable remains unstressed, the mid vowel allomorph is selected in US (the cover constraint DEFAULTSTRESS is used to refer to the hierarchy of constraints that assigns default stress in Spanish, i.e. penultimate stress when the word ends in a vowel or an inflectional suffix ending in a consonant, and final stress when the word ends in other consonants).

(16) US

morphology	phonology		DEFAULT STRES	IDENT	TONIC--> DIPHTONGAL	*DIPHTHONG
	Input	Output				
[p{o, we}d-e]-mos]	☞ /podemos/	[pwedémos]		*!	(*)	*
		☞ [podémos]			(*)	
	/pwedemos/	[pwedémos]			(*)	*
		[podémos]		*!	(*)	

(17) NUS

morphology	phonology		FAITH-PROSODICSPEC	IDENT	TONIC--> DIPHTONGAL	*DIPHTHONG
	Input	Output				
[p{o, we}d-e]-mos]	/pódemos/	[pwédemos]		*!		*
		[pódemos]			*!	
	☞ /pwédemos/	☞ [pwédemos]				*
		[pódemos]		*!	*	

Therefore, the difference between standard and non standard varieties of Uruguayan Spanish is not placed in the phonology, as a rule loss or rule deletion, but in the lexical entry. The next subsection briefly presents a potential problem with an account that places the burden of the dialectal variation in the phonology.

3.1. Leveling in NUS: rule loss (or rule addition)?

Recall from § 2 that under some approaches to Spanish stress, an algorithm that takes into account the morphological structure of the verbal form places stress before the tense affix. This kind of algorithm correctly located stress in most of the verbal forms, but needed an additional rule to retract stress in some of the forms in the present. For instance, in (18a) the algorithm locates stress in the final syllable in the 2sg present indicative: *comés* ‘you eat’. And in fact, this form is present in those dialects that use the pronoun *vos*. US is among these former dialects. However, in order to correctly locate stress in the rest of the Spanish dialects, the stress deletion rule needs to apply and retract stress one syllable (18b):

- (18) *Present Indicative* [Root [v Th]] T/Agr
- a. After stress algorithm: 2sg *vos* [com-é]s Uruguay, Argentina...
- b. Stress retraction Rule: 2sg *tú* [cóm-e]s Rest of varieties without *vos*

Now, if we look at the present subjunctive in NUS, it could be argued that a similar type of rule retracts stress in NUS (19b):

- (19) *Present Subjunctive* [Root [v Th]] T/Agr
- a. After stress algorithm: 1pl [com-é]mos All Standard varieties
- b. Stress retraction Rule: 1pl [cóm-e]mos NUS

The difference between the dialects that show default stress (19a) and NUS (19b) would be placed in the addition of a stress retraction rule in NUS. However, even if this type of rule would derive the correct result in the paradigms of regular verbs, as illustrated in (19), it would not account for the leveled forms in irregular verbs (see 20b):

- (20) *Present Subjunctive: irregular verbs* [Root [v Th]] T/Agr
- a. Present Subjunctive 1pl [pod-á]mos All Standard varieties
- b. Stress retraction Rule: 1pl *[pód-a]mos (but NUS: *pwédamos*)

Once the stress is retracted, the form *pódamos* ‘we can.SUBJ’ with a stressed mid vowel in the root would emerge, rather than the stressed diphthong, i.e. *pwédamos* ‘we can.SUBJ’. This is the case because, in a Distributed Morphology framework, allomorphy is seen as a property of roots rather than stems. Another rule, extrinsically ordered after the stress retraction rule, is needed to get the right result, changing the mid vowel to the diphthong. However, the postulation of this rule seems somewhat stipulative.

Crucially, the morphophonological innovation in NUS with the diphthongized forms seems to speak in favour of an analysis that sees allomorphy as a property of stems, rather than roots. Otherwise, it is not really clear why forms like *p[wé]damos* ‘we can.SUBJ’ and *v[wé]lvamos* ‘we come back.SUBJ’ (rather than *pódamos* and *vólvamos*) are attested (see Bermúdez-Otero 2011 for further evidence that diphthongization is a property of stems in Spanish).

The next section explores two alternative analyses of leveling in NUS. Contrary to the interpretation presented here, within these models similarity effects in morphology result from high-ranking a morphophonological constraint which enforces identity between the

members of the same paradigm. Whereas the two models bring clear insights in our understanding of phonological change, they exhibit some problems when trying to account for leveling in NUS.

4. Leveling as a satisfaction of a morphophonological constraint enforcing identity

4.1. Optimal Paradigms (McCarthy 2005)

Within the OP model, candidates are entire inflectional paradigms, which consist of all the words based on a single lexeme. The stem (output form of the shared lexeme) in each paradigm member is in a correspondence relation with the stem in every other paradigm member. Thus, this model assumes there are symmetrical relations among surface forms of the members of the same paradigm. That is, all forms in the paradigm influence each other. There is no distinctive base, rather, every member of a paradigm is a base of sorts with respect to every other member (McCarthy 2005:173). To encode this in the grammar, in addition to the traditional input-output faithfulness and markedness constraints, OP includes a second type of faithfulness constraint, a type of output-output restriction that enforces identity between the members of the same paradigm (OP constraints). When this type of constraint is high-ranked in a language, leveling takes place. To illustrate the way this model proceeds, consider the following example from Albright (2008a:273). Imagine there are two languages, X and Y, with final devoicing. In these languages, the markedness constraint FINDEVOI must dominate the constraint enforcing voicing identity between input-outputs, i.e. IO-ID(voi). In language X, illustrated in (21), the paradigm that shows devoicing in final position only surfaces as optimal (21a). In such a language, the constraint requiring voicing identity between the members of the same paradigm is low ranked and, thus, candidates (21b) and (21c) are ruled out. By contrast, in language Y, where the OP constraint is higher ranked (see 22), the candidate with devoicing in both members of the paradigm surfaces as optimal, i.e. (22b):

(21) *Language with final devoicing and no OP effect (from Albright 2008a:273)*

/bund/, /bund-ə/	FINDEVOI	IO-ID(voi)	OP-ID(voi)
a. [bunt], [bundə]		*	*(t~d)
b. [bunt], [buntə]		**!	
c. [bund], [bundə]	*!		

(22) *Language with final devoicing and OP effect*

/bund/, /bund-ə/	OP-ID(voi)	FINDEVOI	IO-ID(voi)
a. [bunt], [bundə]	*(t~d)		*
b. [bunt], [buntə]			**
c. [bund], [bundə]		*!	

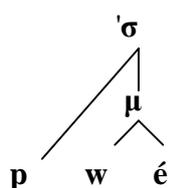
Note that within this model, paradigmatic pressures are exclusively induced by phonological markedness, i.e. only phonologically unmarked forms are extended. This is clear in (22), where the phonological unmarked form [bunt] acts as an attractor for the other forms in the paradigm. Although candidate (22c) performs equally good with respect to OP-ID(voi), since

the language has a process of final devoicing, the ranking FINDEVOI >> IO-ID(voi) selects the paradigm that shows leveling towards the phonological unmarked form, and not the one that exhibits leveling towards a marked form, i.e. a form without final devoicing. Furthermore, in this model there is no formal distinction between categories such as gender, number, tense or aspect and, thus, all forms have the same potential of influence among themselves. Finally, another important prediction within this model is that the most common form in the paradigm is also expected to act as an attractor for the others (the so called majority rule effects).

4.2. Some problems of Optimal Paradigms when accounting for the innovation in NUS

In NUS, the most frequent form (i.e. the stressed root in regular verbs, and the one with stress and diphthong in irregular verbs) is indeed the one that has been extended. That is, the majority rule effect is borne out. However, it is not so obvious that the leveled form is the most unmarked in the paradigm. From a phonological point of view, it is well known that antepenultimate stress in Spanish is marked (e.g. it is less frequent). Thus, changing the form *comámos* to *cómamos* ‘we eat.SUBJ’ or *podámos* to *pwédamos* ‘we can.SUBJ’ involves a change towards a phonologically marked form. Furthermore, not only is the stress pattern more marked, diphthongs with prevocalic glides seem to be structurally more complex than unstressed mid vowels. Prevocalic glides have traditionally been considered to be part of a complex nucleus, based on several phonotactic restrictions, sonority co-occurrence constraints and default stress (Harris 1983; Núñez-Cedeño & Morales Front 1999; cf. Cabré & Prieto 2006 for a different approach to historical diphthongs, which are the ones studied here). Thus, some authors have proposed that rising diphthongs in Spanish are sharing a mora (Bakovic 2006; Martínez-Paricio 2012), as in (23a):

(23) a. *Leveled form 1pl*



b. *Eliminated form 1pl*



In addition, from a morphological point of view, it also looks like the unstressed roots in regular verbs (e.g. *com-*) and unstressed roots with mid vowels in regular verbs (e.g. *pod-*) are less marked than the stressed and diphthongized roots (e.g. *cóm-*, *pwéd-*). For instance, deverbal derived nouns generally select the form without stress and without diphthongs as a base:

(24) a. *poder* [po.ˈðer] ‘to be able to, can’

p[o]tén-te ‘strong, potent’

p[o]der-ó-so ‘powerful’

p[o]der-í-o ‘power, wealth’

b. *comer* [ko.ˈmer] ‘eat’

c[o]mest-í-ble ‘edible’

c[o]med-ó-r ‘dining room’

c[o]med-é-ro ‘eating vessel’

Additionally, there is acquisition data showing that Spanish children acquiring the language exhibit systematic errors in irregular verbs, and these errors involve leveling towards the

forms with the mid vowel, rather than the diphthong (Clahsen et al. 2002). Therefore, the NUS data pose a challenge to the specific OP prediction that leveling is always biased towards the phonologically unmarked.

Another challenge to the OP model is that it is not very clear why leveling only occurs in the subjunctive, and not in the indicative, where a similar contrast between stressed vs. unstressed, diphthongs vs. mid vowels occur. Since there is no formal distinction between verbal moods, the same hierarchy that accounts for leveling in the subjunctive would predict leveling in the indicative. Nonetheless, a possible answer to this could be that in Uruguayan Spanish there is a greater contrast in the indicative than in the subjunctive, since the unstressed/mid vowel also appears in a dialectal form of the 2sg (e.g. *tú/vos podés*). Thus, the contrast between stressed vs. unstressed roots is not as weak as in the subjunctive⁷. However, there are other Spanish dialects where this form does not exist, and still, the same kind of leveling as in NUS has been reported. For instance, this is the case for some speakers of Western Spanish, where forms with antepenultimate stress such as *h[á]yamos* ('have AUX.1PL.PRESENTSUBJUNCTIVE'), *v[á]yamos* ('go. 1PL.PRESENTSUBJUNCTIVE'), *t[é]ngamos* ('have.1PLPRESENTSUBJUNCTIVE') have been attested (i.e. instead of the standard forms with penultimate stress: *hay[á]mos, vay[á]mos, teng[á]mos*, Enguita-Utrilla 2010:292). In these varieties the present subjunctive has undergone the same kind of leveling as in NUS but the indicative has remained unchanged.

4.3. Base Priority Model (Albright 2002, 2005, 2008a,b)

In this model, inflectional paradigms have a privileged base (Albright 2002, 2005, 2008a). This base corresponds to a single surface form and is maximally informative, i.e. it must preserve the most contrasts and permit accurate and productive generation of as many words as possible in the paradigm (Albright 2002:7). Albright's general hypothesis is that learners impose structure on paradigms as an effort to construct phonological and morphological grammars that are able to generate unknown forms as accurately and confidently as possible. Thus, the learner does not need to memorize the whole paradigm, but she can derive it by applying morphological and phonological rules (or constraints) to the privileged base. In that sense, this model assumes that there is an asymmetrical relation between forms of the same inflectional paradigm, i.e. a surface base has priority over the rest and may influence their shape. Albright's evidence for the use of bases is the ability of speakers to produce and comprehend novel forms that they have never encountered before and have thus not had the chance to memorize, based on other forms. However, it is not totally clear that the fact that speakers can produce novel forms shows that speakers use bases when generating new forms. This ability could also be interpreted as evidence of the use of abstract templates. The other type of evidence is historical: since forms are often rebuilt on the basis of other forms within the paradigm, speakers must construct relations between parts of the paradigm. In that sense, Albright's model makes two clear predictions with respect to the direction of leveling: (i) it should affect only non-basic forms and (ii) it should target only those contrasts that are not preserved in the base. Thus, within this model, leveling towards phonologically marked forms are possible. In particular, if the informative base happens to be phonologically marked, it can be used to generate the rest of the forms in the paradigm. To sum up, in BP, leveling in NUS could be analysed as an effect of the way speakers use their grammars to

⁷ In the present subjunctive, there are 4 stressed roots vs. 1 unstressed root; in the present indicative, 3 stressed roots vs. 2 unstressed roots.

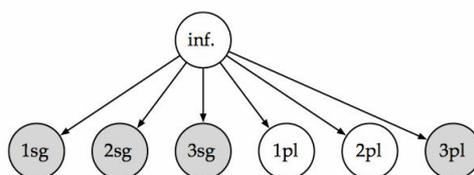
project unknown forms, i.e. an input(base)-output effect. However, the way in which the privileged base is selected in this dialect is not so clear. As discussed in the next section, the task of selecting a base is especially difficult in large paradigms, such as the Spanish verbal paradigm where, very often, multiple local bases would be needed to generate all the forms in the paradigm. In fact, Albright allows for the use of local bases in large paradigms. In particular, Albright (2002) suggests that apart from the infinitive, the 1sg indicative is used as a local base in Spanish verbs. However, this is problematic, as shown in the next section.

4.4. The problems of the Base Priority Model when accounting for the innovation in NUS

The infinitive form in Spanish is maximally informative: it unambiguously reveals the conjugation class of the verb, and it allows generating most of the forms in the paradigm. Thus, within a BP model, Spanish speakers could use the infinitive form as the global base within the verbal paradigm. The following table from Albright (2002:123) shows that the infinitive, but also the 1pl and 2pl, are the forms that allow to generate the greater number of forms in the paradigm using the fewest rules:

(25) Deriving Spanish present tense paradigms (from Albright 2002:123)

↓In/Out→	1sg	2sg	3sg	1pl	2pl	3pl	infin.	average
1sg		0.895	0.896	0.867	0.867	0.896	0.867	0.881
2sg	0.986		0.995	0.740	0.740	0.995	0.740	0.866
3sg	0.986	1.000		0.750	0.750	1.000	0.750	0.873
1pl	0.902	0.908	0.909		1.000	0.909	1.000	0.938
2pl	0.902	0.908	0.909	1.000		0.909	1.000	0.938
3pl	0.986	1.000	1.000	0.750	0.750		0.750	0.873
infin.	0.902	0.908	0.909	1.000	1.000	0.909		0.938



Results of global base selection for Spanish present tenses

The infinitive and the 1pl, 2pl perform equally well in the amount of forms they allow to generate when used as bases. Thus, any of them could in principle be selected as the global base in the verbal paradigm. In later work, however, Albright (2008b) argued that when there is a tie, frequency can disambiguate which form should be taken as a base, in this case favouring the infinitive. Nevertheless, if the 1pl is a potential base, or at least is generally identical to the infinitive, it is not so clear why leveling changes this form, since leveling is supposed to target only non basic forms. In other words, if the 1pl is as informative as the infinitive (i.e. the global base) it is unexpected that it undergoes a change deviating from the global base, as shown in (26):

- (26) a. Infinitive: *comér* ‘to eat’ 1pl Subj: *comémos* -----> NUS: *cómemos*
- b. Infinitive: *podér* ‘can’ 1pl Subj: *podémos* -----> NUS: *pwédemos*

Furthermore, as already discussed, large paradigms like Spanish verbal forms need multiple local bases to generate all the forms in the paradigm. It is simply not possible to generate all the forms of irregular verbs using only the infinitive. That is, the learner needs several local bases to generate all the attested alternations. The question is then, which is the other form that Spanish speakers use as a base? In particular, which form do speakers use as a base to produce the present tense forms?

Albright discusses this issue in his dissertation and suggests that apart from the infinitive, Spanish speakers use the 1sg present indicative form as a base to generate the rest of the forms in the present. Albright builds this argument based on historical facts. Namely, in Spanish, some irregularities that were generally attested exclusively in the 1sg of the present indicative have been extended to all the forms of the subjunctive. For example, the verb *cabér* ‘to fit’, which has two irregularities in the 1sg present indicative — an idiosyncratic realization of the stressed vowel and a following stop — is now present in all the forms of the subjunctive (the irregularities are highlighted in bold face):

(27) *Present Indicative and Subjunctive of the irregular verb cabér ‘to fit’*

	1sg	2sg	3sg	1pl	2pl	3pl
a. Pr. Ind.	[kép] o	[kaβ]es	[kaβ]e	[kaβ]emos	[kaβ]éis	[kaβ]en
Pr. Subj.	[kép] a	[kép] as	[kép] a	[kep] ámos	[kep] áis	[kép] an

Another type of irregularity that has the same distribution (i.e. 1sg present indicative and all the forms of the present subjunctive) is illustrated in (28), with the verbs *oír* ‘hear’, *venir* ‘come’ and *conocer* ‘to know’. The insertion of a velar in the present indicative 1sg, has been extended to the whole paradigm of the subjunctive. This pattern is also present in other Romance languages (Maiden 1992, 2004):

(28) *Present Indicative (PI) and Subjunctive (PS) of 3 irregular verbs with velar insertion*
(verbs *oír* ‘to hear’ (28a), *venir* ‘to come’ (28b), *conocer* ‘to know’ (28c))

	1sg	2sg	3sg	1pl	2pl	3pl
a. PI	óigo	oyes	oye	oímos	oís	oyen
PS	óiga	óigas	óiga	oigámos	oigáis	óigan
b. PI	véngo	viénes	viéne	venímos	venís	viénen
PS	vénga	véngas	vénga	vengámos	vengás	véngan
c. PI	conóz[k]o	conoces	conoce	conocemos	conocéis	conocen
PS	conóz[k]a	conóz[k]as	conóz[k]a	conoz[k]ámos	conoz[k]áis	conoz[k]an

A potential problem with this approach is that if we look carefully at the 1pl and 2pl forms of the subjunctive, we notice that they are not based exactly on the 1sg present indicative. Crucially, although they contain the same segmental material, the prosodic structure of their stems is different. In the 1sg present indicative, the stress is in the final vowel within the root, but in the 1pl and 2pl the stress is moved one syllable to the right. Thus, it cannot be stated that the entire subjunctive takes the 1sg indicative as a surface base, unless something else is said about why stress is not carried over to some of the forms in the present subjunctive (i.e. 1pl, 2pl). Furthermore, recent experimental research on verbal morphology in Romance languages seems to contradict the hypothesis that 1sg indicative is the base speakers rely on to generate the present subjunctive. Namely, Nevins & Rodrigues’ (2012) experiment on implicational generalizations with noncwords showed that given the choice between an

alternation in the 1sg and the 2sg present indicative (e.g. p~f, t~s, k~x), participants preferred the 2nd indicative base, rather than the 1sg indicative base. The task and results for Spanish are illustrated below in (29). 148 speakers participated in the task. They were presented with two different conditions. In the first one, exemplified in (29a), they were given the 2sg and the 1sg nonce form for the present indicative and were asked to produce the 2sg subjunctive. In 72% of the cases they chose to build this new form taking the 2sg indicative as a base for the subjunctive. In the second condition (29b) they were presented again with the 1sg indicative and the 2sg indicative (in that order), and asked to produce the 3sg subjunctive. In 71% of the cases they built this form choosing the 2nd indicative as the base:

(29) Example from condition I and II in Nevins & Rodrigues (2012)

a. Cond I: Ind (1st, 2nd) → Subj 2nd	b. Cond II Ind (1st, 2nd) → Subj 3rd
<p>Tú llutes solamente con la mano derecha, pero yo lluso con cualquier mano. Es necesario que ____ con las dos manos para que así seas más productivo. ‘You <i>llutes</i>2SG.IND only with your right hand, and but I <i>lluto</i>1SG.IND with either hand. It’s necessary that you ____2SG.SBJ with both hands in order to be more productive.’</p>	<p>El periódico local dice que yo mifo desastrosamente. Tú mipes bien, pero el periódico no dice nada de ti directamente. Pero dijeron que esperan que mi hijo ____ como tú en la competición. ‘The local newspaper says that I <i>mifo</i>1SG.IND disastrously. You <i>mipes</i>2SG.IND well, but the newspaper did not mention you directly. However, they said they hope that my son ____3SG.SBJ like you in the competition.’</p>

Thus, this experiment does not support the hypothesis that the 1sg indicative is the base of the present subjunctive. Consequently, it is not clear that historical grammars can be taken as evidence for synchronic grammars. In an attempt to maintain Albright’s explanation of the facts, it could be argued that NUS speakers have rebuilt these forms based on the 2sg instead. Even though this would account for the leveling of stress and diphthongs in some of the verbs of NUS speakers, we would still need to maintain the local base of the 1sg indicative to correctly generate the irregular verbs in (27) and (28). That is, three local bases would be needed to generate the present subjunctive. One wonders, however, in which way such an account is more explanatory than one that just stores two (or more) underlying allomorphs and then chooses among them depending on the specific phonological grammar. In fact, storing two different allomorphs is enough to generate the whole paradigm of many verbs’ present tenses.

5. Conclusions

The change from unstressed roots to stressed roots in the 1pl present subjunctive in NUS (e.g. *amémos* > *ámemos* ‘we love’, *comámos* > *cómamos* ‘we eat’, *vivámos* > *vívamos* ‘we live’) is particularly interesting from a phonological point of view, because a phonologically marked form has been extended within a paradigm. That is, the dialect studied here has chosen to discard a phonologically unmarked form and has introduced a marked one, giving rise to a more uniform paradigm, in which all stems in the present subjunctive contain the same segmental and prosodic material. The fact that the only form that was different from the rest (i.e. the 1pl) has been modified, warrants an explanation that incorporates frequency or the

majority rule effects as a factor favouring leveling. This pattern suggests that the most common form in a paradigm can be extended, even if it is phonologically marked.

The last two models examined here, OP and BP, bring clear insights on the reasons of leveling: (i) a form that is different within a paradigm is changed so it becomes more similar to the rest of the forms within the paradigm (the OP *majority rule* prediction) and (ii) some forms are often rebuilt on the basis of other surface forms (BP prediction). However, it seems like those reasons should not be directly encoded in the NUS phonological grammar. Instead, it has been proposed that the phonology of US (without leveling) and NUS (with leveling) is identical. In both varieties, the phonology generally selects diphthongs in stressed positions and mid vowels in unstressed positions. Thus, rather than in their phonological systems, the difference between US and NUS is placed in their lexical entries for the present subjunctive. On the one hand, the input to the phonology in US contains only segmental information and, thus, the hierarchy of constraints places stress in its default position. On the other hand, in NUS the input to the phonology contains a stress specification in the final vowel of the root. This specification is preserved in the output of NUS due to a high-ranked faithfulness constraint, for which there is independent evidence (as argued in § 2.2). Crucially, since most of the forms in the paradigm of the present subjunctive (1sg, 2sg, 3sg, 3pl) had stressed roots, it is not surprising that stress has been incorporated in the morpheme of the present subjunctive and, hence, extended to the only unstressed form (i.e. the 1pl). In irregular verbs, the diphthong has also been extended as a natural consequence of stress.

This interpretation of the facts, however, does not really explain why restructuring of the morphological exponent of the present tense in NUS has taken place only in the subjunctive and not the indicative. A possible reason for this could be also due to frequency: it is more likely that less frequent forms undergo leveling. Since speakers are less frequently exposed to subjunctive forms than indicatives, it is expected that restructuring occurs within the subjunctive.

In any case, when language change takes place, there are several factors that can favor that change to happen. Here we have exclusively looked at some of the phonological properties of the morphophonological innovation attested in NUS, but the exploration of syntactic factors, frequency data and other factors external to the language faculty in its narrowest sense (see Chomsky 1986 for the dichotomy between internal and external language) can shed some light on the reasons for the type of leveling described here

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Violeta Martínez-Paricio
 CASTL, University of Tromsø
violeta.martinez-paricio@uit.no

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Cypriot Maronite Arabic: a problem for the universal adjective order?

Fryni Panayidou

In this paper I propose that in the nominal domain of Cypriot Maronite Arabic there are two separate Functional Sequences that are inserted one inside the other. One functional sequence, which I label ‘Arabic Fseq’, accommodates the adjective classes of Quality, Size and native Arabic Colour. The other functional sequence, the ‘Greek Fseq’, is where the classes of Shape, Nationality and borrowed Greek Colour adjectives are merged. The two Fseqs differ morphologically, but also syntactically. In the first one we find adjectives with nonconcatenative morphology and obligatory NP-movement, while in the second Fseq we encounter concatenative morphology and optional NP-movement. Cypriot Maronite Arabic adjectives appear, at first blush, to violate what is considered to be the universal adjective order, however, I will show that each of the two Fseqs adheres to the universal order and that that the apparent violation is the result of embedding the Greek Fseq inside the Arabic Fseq.

1. A puzzle for the universal adjective order

Several studies examining adjectival syntax across languages have noted that attributive adjectives appear to follow a fixed order when modifying a noun (Sproat & Shih 1991; Cinque 1994, 2010; Scott 2002; Laenzlinger 2005, among others). According to the same literature, the ordering restrictions of stacked adjectives are determined by the semantic class of each adjective. The possible orders are given in (1). When prenominal, as in (1a), Size adjectives follow adjectives of Quality, Shape adjectives come after Size, and so forth. When the adjectives appear postnominally, two possible orders are attested crosslinguistically. The first order is identical to the prenominal order, as demonstrated in (1b). The second order, which according to Cinque (2010:38) is the most common for postnominal adjectives, is the mirror image of the prenominal order and is illustrated in (1c).

- (1) a. Quality > Size > Shape > Colour > Nationality > Material > N
b. N > Quality > Size > Shape > Colour > Nationality > Material
c. N > Material > Nationality > Colour > Shape > Size > Quality

In Cypriot Maronite Arabic (hereafter CMA), an endangered Arabic dialect that has been heavily influenced by Greek, we find both prenominal and postnominal adjectives. While most classes adhere to the orders given in (1a) and (1b), the Colour class varies as to whether it follows or precedes Nationality.¹ The expected order is Colour to the left of Nationality, however, in (2) we see that the Colour > Nationality order is only available when the colour terms for ‘green’, ‘yellow’ or ‘blue’ are used. If the colour terms for ‘red’, ‘black’ or ‘white’ are used, the order must be Nationality > Colour as in (3a).

- (2) N > Colour > Nationality:²
- a. ??t^havli l-axmar/isfet/apcað l-italiko
table.DEF the-red/black/white the-italian
‘the red/black/white Italian table’
- b. t^havli li-prasino/tfitrino/ble l-italiko
table.DEF the-green/yellow/blue the-italian
‘the green/yellow/blue Italian table’
- (3) N > Nationality > Colour:
- a. t^havli l-italiko l-axmar/isfet/apcað
table.DEF the-italian the-red/black/white
‘the red/black/white Italian table’
- b. ??t^havli l-italiko li-prasino/tfitrino/ble
table.DEF the-italian the-green/yellow/blue
‘the green/yellow/blue Italian table’

What appears to determine the position of the Colour adjective in this case is whether the colour term is a native Arabic word or a term borrowed from Greek. For example, *prasino* ‘green’ is borrowed from Greek and it appears to the left of Nationality adjectives, while *axmar* ‘red’ is a native Arabic word and has to follow Nationality adjectives.

Bearing this observation in mind, in what follows I will propose that there are two distinct Functional Sequences (Fseqs) in CMA and, consequently, two positions for Colour adjectives in CMA. The apparent violation of the adjective order is the result of one Fseq being inserted inside the other. The Colour position found to the left of Nationality belongs to the Greek Fseq and it

¹CMA does not have any material adjectives so we cannot test where Colour stands in relation to Material. PPs are used to express Material as shown below:

- (i) malaga ma l-aʕut
spoon with-the-wood
‘wooden spoon’

²Definiteness in CMA is marked by the use of the definite article *l-*. However, the article is assimilated when the following word begins with a single consonant. If the word-initial consonant is a plosive, then the plosive becomes aspirated. In the glosses, I distinguish between the phonetically present and the assimilated definite article. The former is glossed as ‘the’, while the latter is marked on the noun or adjective as DEF.

accommodates Colour adjectives borrowed from Greek, while the position after Nationality is part of the Arabic Fseq and is the position where native Colour adjectives surface.

After providing the relevant data for the ordering and placement of all adjective classes in CMA in section 2, I proceed to section 3, where I divide the adjective classes in two categories depending on their morphology and syntax. In particular, in section 3.1 I introduce the idea that there are two distinct Fseqs in CMA and I address the theoretical implications of a system that permits one Fseq to be embedded inside another. In section 3.2 I illustrate how all the possible adjective orders are derived under my analysis. Finally, in section 4 I recapitulate the main points of the paper and provide some final remarks.

2. Adjective ordering and placement in CMA

2.1. Quality, Size and Shape

As already noted, all adjectives in CMA, apart from adjectives of Colour, adhere to the orders given in (1a) and (1b) as represented in (4), regardless of whether they appear before or after the noun. That Quality must precede Size is illustrated in (5) and (6).

(4) Quality > Size > Shape

(5) Postnominal:

a. t^havli k^haes li-ybir N > Quality > Size
table.DEF nice.DEF the-big

b. ??t^havli li-ybir k^haes ??N > Size > Quality
table.DEF the-big nice.DEF
'the nice big table'

(6) Prenominal:

a. ??k^haes li-ybir t^havli ??Quality > Size > N
nice.DEF the-big table.DEF

b. *li-ybir k^haes t^havli *Size > Quality > N
the-big nice.DEF table.DEF
'the nice big table'

The marginality of (6a) stems from the preference for native Arabic adjectives to be postnominal. Since both *kaes* and *ybir* are native Arabic words and are found in a prenominal position, (6a) is degraded. I will temporarily abstract away from the distinction between ?? and *, and simply focus on what is fully acceptable versus what is unacceptable or dispreferred.

Moving on to the classes of Size and Shape, we observe that Size has to appear to the left of Shape, as shown in (7) and (8). Note that judgements are more clear-cut in this case than with Quality and Size. Both the postnominal and the prenominal positions of the adjectives are grammatical, as long as 'big' appears before 'round'. The reverse order is unacceptable in either position. The unexpected acceptability of the native Arabic adjective *ybir* in a prenominal

position is related to the presence of a Greek adjective in the same phrase. This is discussed in more detail in section 3.2.

(7) Postnominal:

- a. t^havli li-ybir li-strodzilo N > Size > Shape
table.DEF the-big the-round
- b. ??t^havli li-strodzilo li-ybir ??N > Shape > Size
table.DEF the-round the-big
'the big round table'

(8) Prenominal:

- a. li-ybir li-strodzilo t^havli Size > Shape > N
the-big the-round table.DEF
- b. *li-strodzilo li-ybir t^havli *Shape > Size > N
the-round the-big table.DEF
'the big round table'

CMA does not allow more than two adjectives at once, therefore it is not possible to test the above three classes in the same construction. Nevertheless, the order set by transitivity is as in (4).

2.2. Colour and Nationality in relation to Shape

Before looking into the interaction of Colour and Nationality, let us examine whether both of these classes appear after Shape, as expected on the basis of (1a) and (1b).

The data in (9) and (10) show that Shape must indeed appear before Nationality both in a prenominal and a postnominal position.

(9) Postnominal:

- a. t^havli li-strodzilo l-italiko N > Shape > Nationality
table.DEF the-round the-italian
- b. ??t^havli l-italiko li-strodzilo ??N > Nationality > Shape
table.DEF the-italian the-round
'the round Italian table'

(10) Prenominal:

- a. li-strodzilo l-italiko t^havli Shape > Nationality > N
the-round the-italian table.DEF
- b. *l-italiko li-strodzilo t^havli *Nationality > Shape > N
the-italian the-round table.DEF
'the round Italian table'

Colour, likewise, occurs to the right of Shape regardless of which colour term is used. The (a) examples, in (11) to (14), use a native Arabic colour term, while the (b) examples use a colour term borrowed from Greek. The acceptability effects are identical with both types of Colour adjectives. The postnominal cases are given in (11) and (12).

(11) N > Shape > Colour:

- | | | | | |
|----|---------------------|--------------|------------|---------------|
| a. | t ^h avli | li-strodzilo | l-axmar | Arabic Colour |
| | table.DEF | the-round | the-red | |
| b. | t ^h avli | li-strodzilo | li-prasino | Greek Colour |
| | table.DEF | the-round | the-green | |

(12) N > Colour > Shape:

- | | | | | |
|----|-----------------------|------------|--------------|---------------|
| a. | ??t ^h avli | l-axmar | li-strodzilo | Arabic Colour |
| | table.DEF | the-red | the-round | |
| b. | ??t ^h avli | li-prasino | li-strodzilo | Greek Colour |
| | table.DEF | the-green | the-round | |

Prenominaly, the picture is complicated by the fact that postnominal placement is preferred for native adjectives. Nevertheless, if we compare (13a) to (14a), we observe that the order Colour > Shape, which is given in (14a), is more degraded than the order in (13a), where Shape comes before Colour. This is an indication that the Shape > Colour order is more natural.

(13) Shape > Colour > N:

- | | | | | |
|----|----------------|------------|---------------------|---------------|
| a. | ??li-strodzilo | l-axmar | t ^h avli | Arabic Colour |
| | the-round | the-red | table.DEF | |
| b. | li-strodzilo | li-prasino | t ^h avli | Greek Colour |
| | the-round | the-green | table.DEF | |

(14) Colour > Shape > N:

- | | | | | |
|----|-------------|--------------|---------------------|---------------|
| a. | *l-axmar | li-strodzilo | t ^h avli | Arabic Colour |
| | the-red | the-round | table.DEF | |
| b. | *li-prasino | li-strodzilo | t ^h avli | Greek Colour |
| | the-green | the-round | table.DEF | |

Finally, the prenominal borrowed Colour adjective follows the same pattern as when it is in a postnominal position. In other words, the order Shape > Colour, which is demonstrated in (13b), is grammatical, while the reverse order, which is given in (14b), is not.

We conclude that both Colour and Nationality follow Shape, in line with the orders in (1a) and (1b).³

³A reviewer points out that it is interesting to test Nationality and Colour adjectives with adjectives of Quality that can be sometimes used intersectively. The pattern that emerges is the same as with Shape adjectives. In the examples below *kaes* 'nice' has the meaning of 'formal' and we observe that it must precede the classes of Colour and Nationality:

2.3. Colour and Nationality

The question that arises from the data presented above is why it is possible to find Colour both before and after Nationality, especially when all other adjective classes follow a single order that is universally available.

One way of approaching the problem of colour ordering in CMA, is to claim that the order between Nationality and Colour adjectives is free, due to their intersective nature. This is a position that Truswell (2004, 2009) takes, presenting the examples in (15) as evidence in favour of the claim that intersective adjectives are interchangeable.

- (15) a. wooden red clogs
 b. red wooden clogs Truswell (2009:527)

While this might be true in the case of English, this hypothesis causes more problems than it solves in CMA. Firstly, if intersective adjectives are freely ordered, we expect this to affect all intersective adjectives in CMA, but, as we have seen in section 2.2, this is clearly not the case; a Shape adjective will always precede a Nationality or Colour adjective although all of these three classes are intersective.

Secondly, if we assume that for some reason only adjectives of Nationality and Colour are freely ordered, we expect all possible orders of Nationality and Colour to be acceptable. As we have seen in (2) and (3), however, the order is not free; rather the acceptability of the order depends on the lexical item used. In particular, if a borrowed colour term is used, then the Colour adjective must precede Nationality. If, on the other hand, the colour term is a native Arabic lexical item, then it will obligatorily follow Nationality. This is represented in (16) below:

- (16) Colour_{Greek} > Nationality > Colour_{Arabic}

I assume that the reason we find variance with regards to the position of Colour is because there are two distinct positions for Colour in CMA; one position accommodates the native Arabic colour terms, while the other is available to borrowed Greek colour terms. Note that the only native Arabic colour terms in CMA are for ‘red’, ‘black’ and ‘white’.⁴ I, therefore, suggest that

-
- (i) a. t^havli k^haes l-axmar/li-strodzilo
 table.DEF formal.DEF the-red/the-round
 b. ??t^havli l-axmar/li-strodzilo k^haes
 table.DEF the-red/the-round formal.DEF
 ‘the formal red/round table’

⁴The fact that these three particular colour terms have been resilient to borrowing is not surprising if one takes into account Berlin & Kay’s (1991) typological work on colour universals. According to their findings, if a language only contains three colour terms, then these terms will be for white, black and red. The different forms of these three colours in CMA are shown in (i):

- (i) a. axmar - xamra - xumr
 red.M.SG - red.F.SG - red.M/F.PL
 ‘red’
 b. isfet - sauta - sut
 black.M.SG - black.F.SG - black.M/F.PL

these three native terms appear in a position that follows Nationality, while all other colour terms that are borrowed from Greek are merged in a position to the left of Nationality.

Postnominal configurations supporting this claim were exemplified in (2) and (3). Prenominally, the Arabic Colour adjective is unacceptable, but as mentioned earlier, this is due to the preference for native Arabic adjectives to be postnominal. What is important to note however, is the contrast between (17a) and (18a); specifically the order *italiko* > *aχmar* is less degraded than the reverse order, suggesting that the Nationality > Colour order is less marked for the native Arabic adjective. As for the Greek Colour adjective, the judgements are more robust. It is permitted only before Nationality, as illustrated in (18b).

- (17) Nationality > Colour > N:
- | | | | | |
|----|-------------|------------|---------------------|---------------|
| a. | ʔʔl-italiko | l-aχmar | t ^h avli | Arabic Colour |
| | the-italian | the-red | table.DEF | |
| b. | *l-italiko | li-prasino | t ^h avli | Greek Colour |
| | the-italian | the-green | table.DEF | |
- (18) Colour > Nationality > N:
- | | | | | |
|----|------------|-------------|---------------------|---------------|
| a. | *l-aχmar | l-italiko | t ^h avli | Arabic Colour |
| | the-red | the-italian | table.DEF | |
| b. | li-prasino | l-italiko | t ^h avli | Greek Colour |
| | the-green | the-italian | table.DEF | |

The conclusion drawn from this set of data is that the Arabic Colour adjectives systematically contrast with the borrowed Greek Colour adjectives with respect to their position.

3. Resolving the Colour puzzle

3.1. Two Fseqs

While we have already seen that Colour adjectives appear in different positions depending on whether they are native or borrowed words, in what follows I show in more detail how morphology supports the assumption that there exist two separate Colour positions. In particular, what we will see is that the Arabic Colour class, Quality and Size follow rules of nonconcatenative morphology, while Greek Colour adjectives, but also Nationality and Shape adjectives

-
- | | | | |
|----|------------|--------------|----------------|
| | ‘black’ | | |
| c. | apcað | - peða | - pið |
| | white.M.SG | - white.F.SG | - white.M/F.PL |
| | ‘white’ | | |

Borg (2004:84, 2011:77) claims that CMA has a five-term colour system that also includes the native words *χoðer*.M.SG ‘green’ and *asfar*.M.SG ‘yellow’. According to my informants, *χoðer* is used to express the meaning ‘fresh/unripe’ and *asfar* conveys the meaning ‘pale’. Borg (2004:85) points out that these nonrestrictive meanings of the two colour terms are shared in many other Arabic dialects. Yet, in CMA it appears that these two terms are limited to the noncolour meanings and speakers prefer to use the Greek borrowed terms to convey the meanings ‘yellow’ and ‘green’. As a result, when *asfar* and *χoðer* are used in CMA, they appear as Quality adjectives.

have concatenative morphology.

Firstly, the classes of Quality and Size consist of native Arabic words or borrowed Greek words that were nativised to resemble the CMA nonconcatenative morphology. In these two classes, the consonantal root is modified by the insertion of vowels when specified for number and gender. For example, in (19) the insertion of /i/ in the root γbr signifies masculine gender and singular number.

- (19) Native Arabic word:
- a. $\sqrt{\gamma br} \rightarrow \gamma bir.MASC.SG$ 'big'
 - b. $\sqrt{\gamma br} \rightarrow \gamma bar.PL$

An example of a nativised Size adjective is the word for 'short/low'. In (20) we observe that while the original Greek root is *xamil*, the CMA root is χmn which, similarly to γbr , is modified for gender and number. Both the phonology and morphology of the Greek root were altered in this instance.

- (20) Borrowed nativised word (Borg 1985:112):
- a. $\sqrt{\chi mn} \rightarrow \chi min.MASC.SG$ 'short/low' (from the Greek \sqrt{xamil})
 - b. $\sqrt{\chi mn} \rightarrow \chi man.PL$

In contrast to the classes of Quality and Size, Shape and Nationality only consist of borrowed Greek words that have kept the Greek concatenative morphology. As witnessed in (21), the root for 'square', *tetrajon*, remains unchanged when the adjective is specified for gender and number. These two features are marked via suffixation.

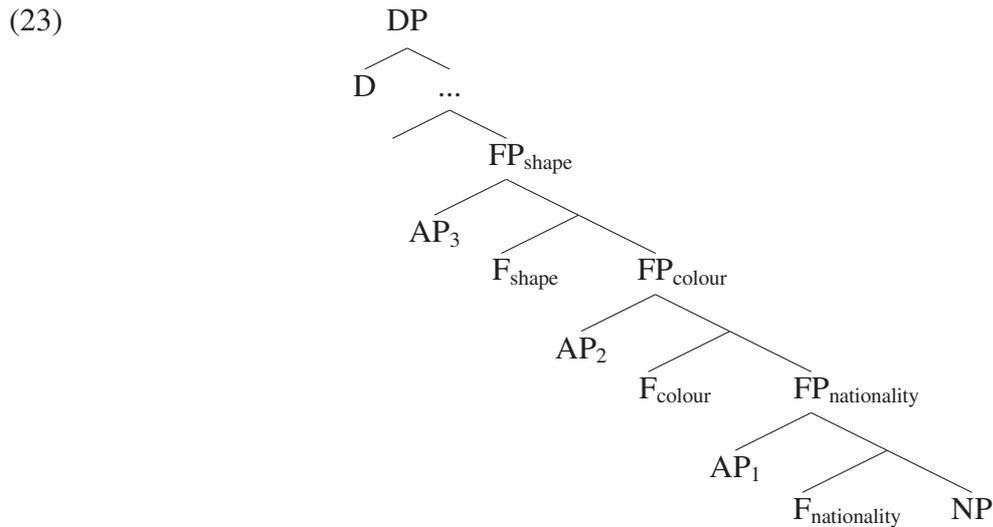
- (21) Borrowed Greek word:
- a. $\sqrt{tetrajon} \rightarrow tetrajono.MASC/NEUT.SG$ 'square'
 - b. $\sqrt{tetrajon} \rightarrow tetrajona.NEUT.PL$

Colour is the most interesting class when it comes to morphology. It consists of Arabic words with nonconcatenative morphology, which are the three terms for 'white', 'black' and 'red', but it also includes borrowed Greek words with concatenative morphology. This is demonstrated below:

- (22) Native Arabic Colour and Borrowed Greek Colour words:
- a. $\sqrt{\chi mr} \rightarrow a\chi mar.MASC.SG$ 'red'
 - b. $\sqrt{pras\acute{i}n} \rightarrow prasino.MASC/NEUT.SG$ 'green'

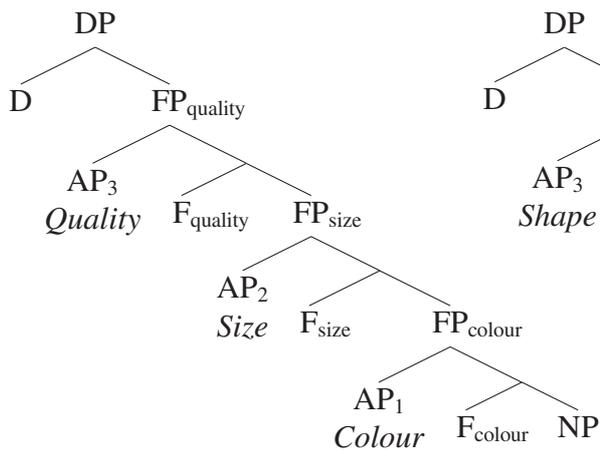
A conclusion drawn from the above examples is that adjectives in CMA fall into two categories with regards to their morphology. Based on this conclusion and taking it a step further I assume that there is a separate functional sequence for each of these categories. For example, the classes that follow nonconcatenative morphology, which are Quality, Size and Arabic Colour, are merged in a functional sequence which I call 'Arabic Fseq'. On the other hand, the classes of Shape, Nationality and Greek Colour, which come with concatenative morphology, are merged in the 'Greek Fseq'.

I consider a functional sequence to be a fixed hierarchy of functional projections in which adjectives are merged. Adopting Cinque (1994, 2010), Scott (2002) and Laenzlinger (2005), I assume that each adjective is generated in the specifier (Spec) of a dedicated functional projection with which the adjective is semantically related. Given that the functional heads are hierarchically ordered, it follows that the adjectives will also be hierarchically merged, thus capturing the strictness of the universal order. The prenominal universal order of adjectives is simply the result of this functional sequence, which is schematised in (23).

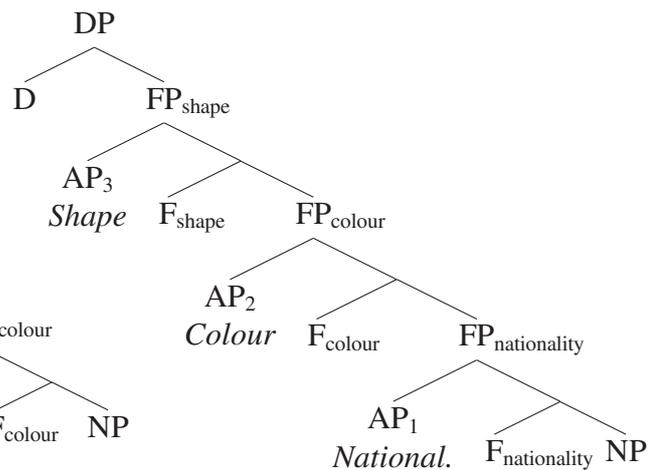


Extending this proposal to CMA, the structure for the Arabic Fseq is seen in (24) and for the Greek Fseq is given in (25). Note that this analysis allows us to maintain that each Fseq is an instantiation of a universal scope hierarchy of adjectival modification.

(24) Arabic Fseq

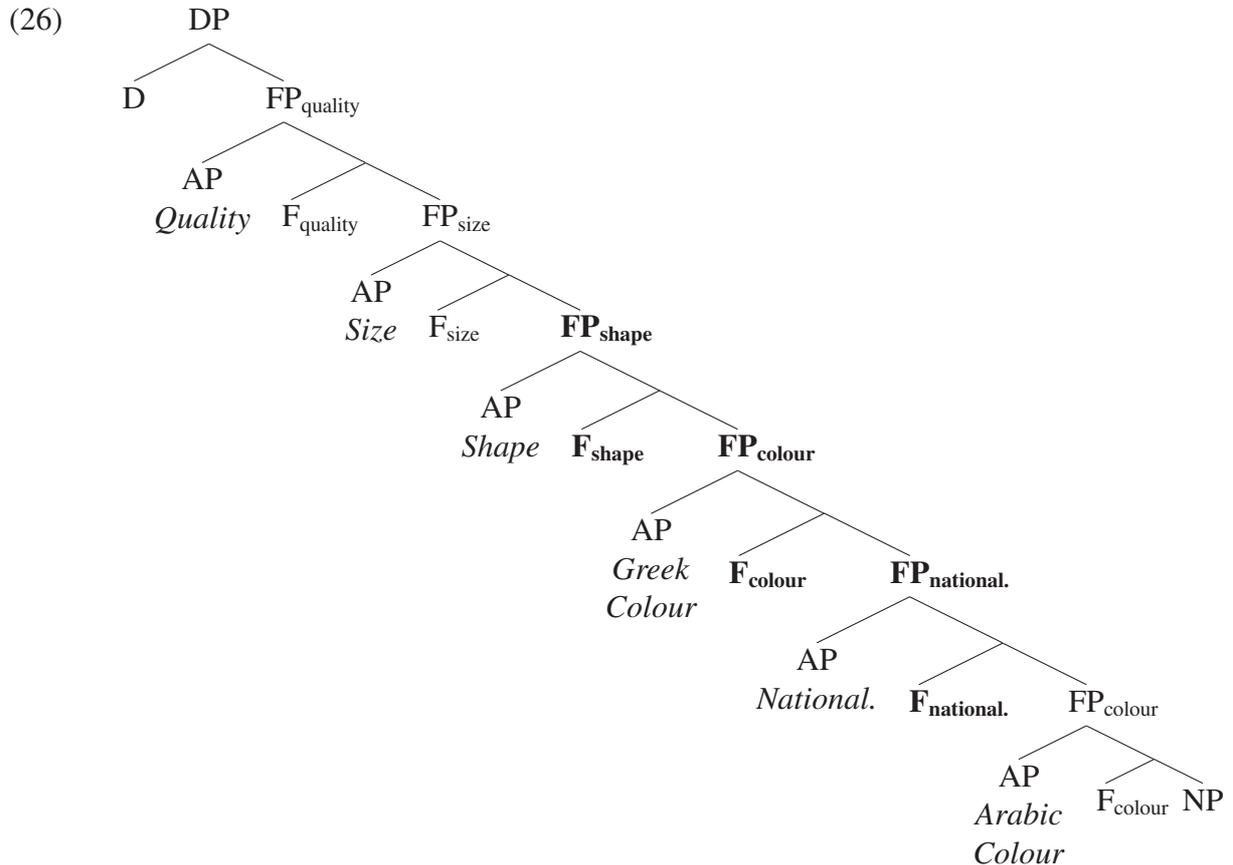


(25) Greek Fseq



The apparent violation of the universal order, where Arabic Colour appears to the right of Nationality, occurs when the two Fseqs are put together. Taking into consideration the data pre-

sented so far, I assume that the Greek Fseq is inserted as one object inside the Arabic Fseq, lower than Size, but above Arabic Colour. Crucially, the Greek Fseq does not include the core, which is N, but only the functional projections above it. The structure, after the Greek Fseq is inserted inside the Arabic Fseq, is therefore as illustrated in (26), where the Greek Fseq is marked with bold letters.

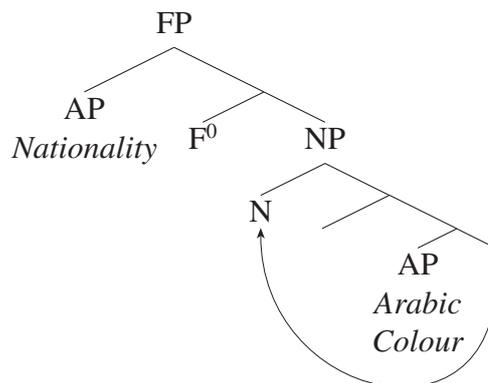


Although each Fseq does indeed follow the hierarchy that is observed crosslinguistically, we still need to account for the fact that the Greek Fseq is embedded between Size and Arabic Colour and not in any other position.

If we assume that selection goes from top to bottom then it is expected that Size will select Shape, as it is the class that follows it in the universal hierarchy. Since I assume that the whole Greek Fseq is inserted as a single object, then what is relevant to selection is only the highest FP in the Greek Fseq, which is Shape.

An alternative proposal is to presume that the N obligatorily moves and reprojects an NP above the low Colour position — Arabic Colour — as in (27).

(27)



After *reprojection* (Surányi 2005, Georgi & Müller 2010) takes place, Nationality only sees and selects an NP. This could potentially account for why Arabic Colour adjectives are strictly postnominal, while other native Arabic adjectives are sometimes allowed prenominally as in (8a). If this is the correct analysis, then the hierarchy in CMA will look like in (28), where no violations of the universal adjective order arise.

(28) Quality > Size > Shape > Colour_{Greek} > Nationality > [_{NP} N Colour_{Arabic} t_N]

A question that arises from this, however, is how reprojection is justified if it is a process that occurs exclusively with this class. If we consider the examples in (29), we observe that the Colour class, in general, appears to be more noun-like than other classes, so this could be an indication that this class is found in a closer relationship with N.

- (29) a. Red is a nice colour.
 b. #Greek is a good nationality.
 c. #Round is a good shape.

Another point that might be of relevance, has to do with the fact that CMA does not have any native words for the classes of Nationality or Material, which are the only classes that are assumed to be found lower than Colour in the universal hierarchy. CMA makes use of PPs in order to express Material, and employs either PPs or borrowed Greek adjectives for Nationality. As a result, it could be the case that these three basic colour terms have always been merged closest to N and have always been found inside the NP.

3.2. Deriving the orders

If the above analysis is on the right track, then we should be able to validate the prediction that the two Fseqs will diverge syntactically. We have already seen that there is a clear-cut distinction in the morphology of the two Fseqs. As for syntax, it was previously mentioned that native Arabic adjectives are preferred postnominally, which is typical of Semitic syntax.⁵ In

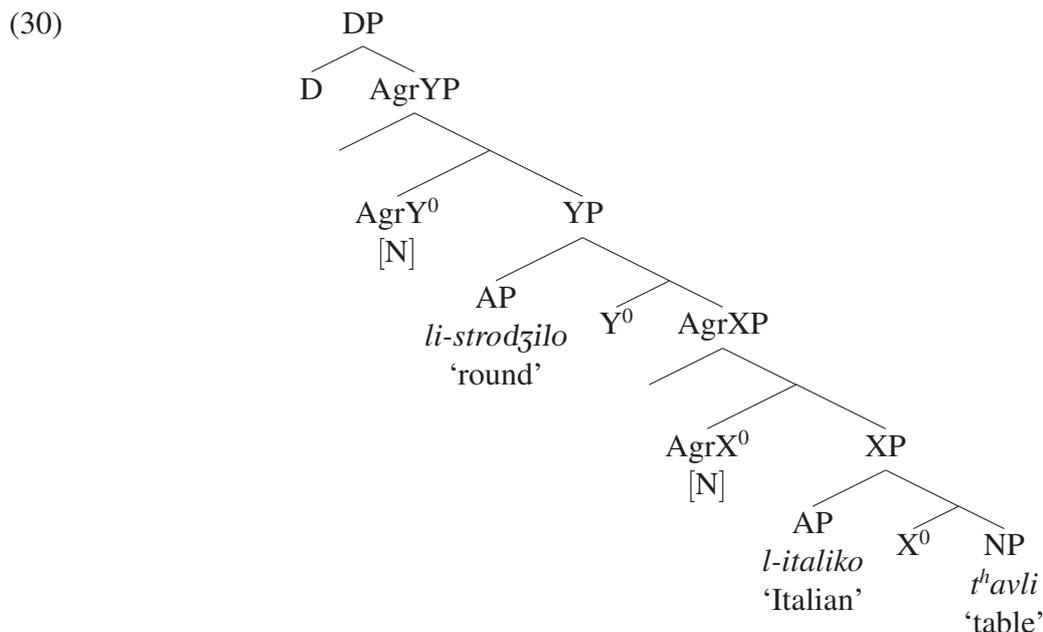
⁵Something that sets CMA apart from other Semitic languages, however, is the order in which postnominal native Arabic adjectives appear. Most Semitic languages follow the postnominal mirror-image order, which was illustrated in (1c), while in CMA native Arabic adjectives appear in the order given in (1b), where adjectives are ordered as when prenominal.

contrast, the borrowed Greek adjectives are acceptable in either a prenominal or a postnominal position.

As we have already seen in (23), the prenominal universal order is the result of adjectives being merged in a fixed hierarchical order above N. Shlonsky (2004) and Cinque (2010) argue that any other order witnessed across languages is derived via movement of a phrase that contains the N above each AP. For this reason, they assume that each FP is merged with an Agr⁰ head and that the phrase containing N is moved to the Spec of each AgrP.

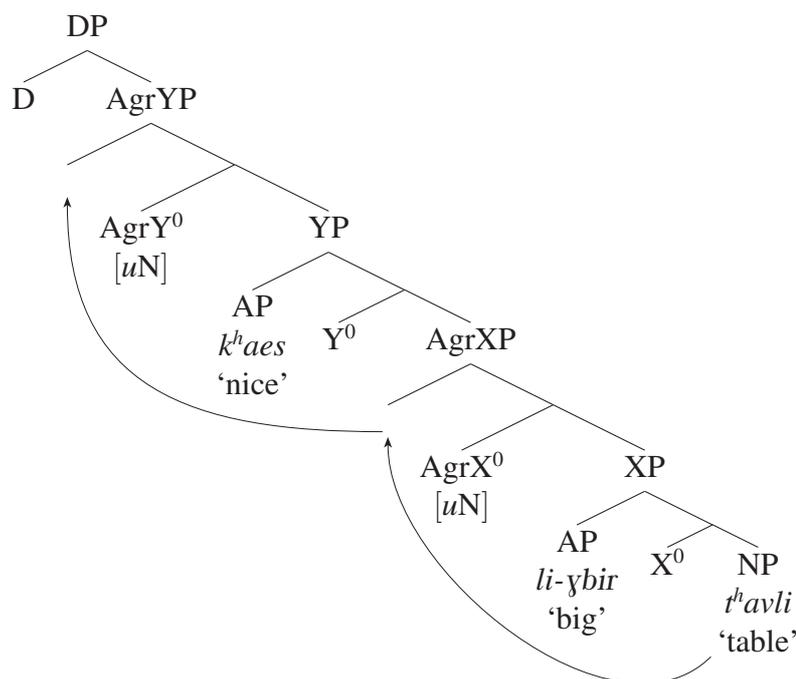
Cinque (2010) argues that the trigger for movement is the need for all APs in the extended nominal projection to be licensed with a nominal feature. He claims that there are two ways of licensing the APs. For languages with postnominal adjectives, he assumes that the NP — either alone or as part of a larger phrase — will move above each AP, inside their respective AgrPs, in order to license them. As for languages that simply allow prenominal adjectives, he assumes that a nominal feature is merged inside each AgrP and as a result the NP stays in-situ.

In a similar vein, I assume that when the borrowed Greek adjectives are prenominal in CMA an interpretable nominal feature is already merged with each Agr⁰, therefore there is no need for NP movement. This is what we see in (30).



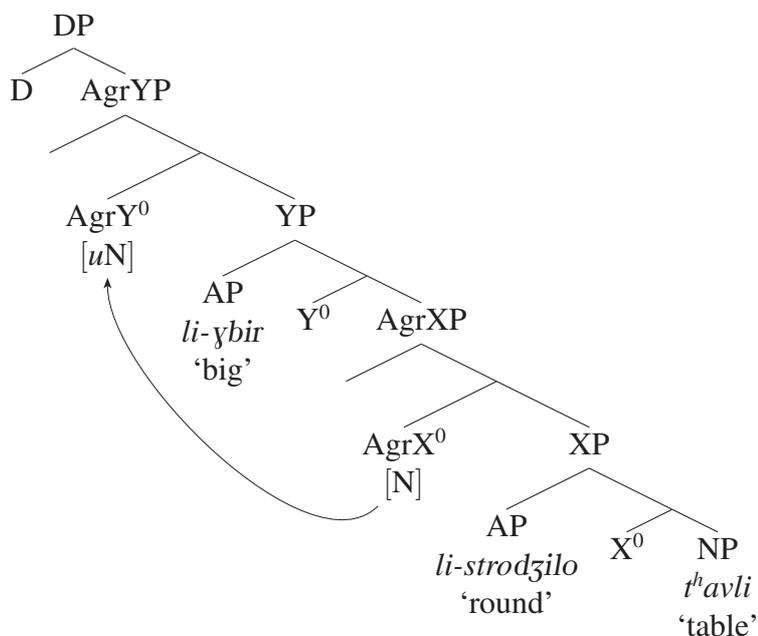
However, in section 2 we saw that the borrowed Greek adjectives are equally grammatical in a postnominal position. In this case, the Agr⁰ heads are merged with an uninterpretable nominal feature and will need to attract a nominal element. This is what also happens within the Arabic Fseq. The Arabic Agr⁰ heads are always merged with an uninterpretable nominal feature. As a result, a nominal element, in this instance the NP, moves cyclically to each Spec,AgrP in order to license these features under Spec-head agreement, as shown in (31). The difference between the Arabic Agr⁰ heads and the Greek Agr⁰ heads, however, is that the former are always merged with [μ N], while the latter have the option of either being merged with [N] or [μ N].

(31)



Recall now how in (8a), a native Arabic adjective, *ybir* ‘big’, was acceptable in a prenominal position, when it surfaced with the borrowed Greek adjective *strodzilo* ‘round’. The question, then, is how this can be accounted for under the current analysis if Arabic Agr⁰ always needs to attract a nominal element. What I suggest is that the nominal element does not always need to be the NP. The presence of [N] on the Greek Agr⁰ allows the higher Arabic AP in a prenominal position, as the nominal element that moves in this case is the lower Agr⁰ that bears [N]. Given that the [uN] is satisfied as schematised in (32), movement of the NP is unnecessary.

(32)



A question that remains, is what is responsible for the syntactic diversity witnessed in the two

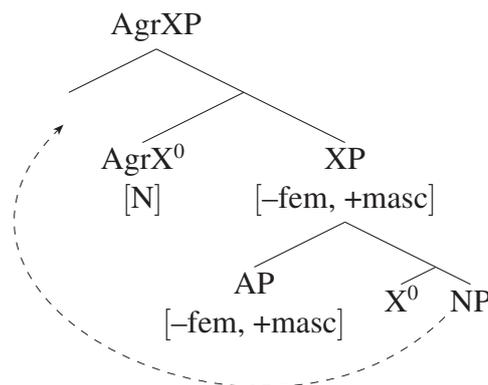
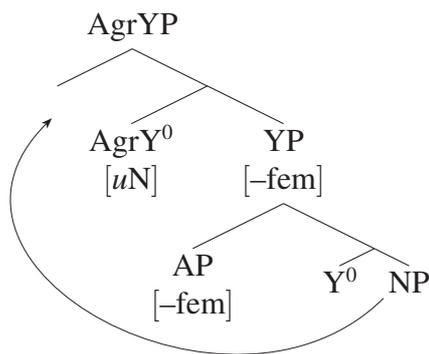
Fseqs. In other words, what it is that makes NP-movement obligatory in the case of the Arabic Fseq, but optional for the Greek Fseq. What we expect to find is a featural distinction between the two.

Indeed, there appears to be a divergence in the gender feature. Native Arabic adjectives only distinguish between feminine and masculine, while borrowed Greek adjectives use a three-way gender system with feminine, masculine and neuter. Consequently, I presume that the gender feature for the Arabic Fseq is $[\pm\text{fem}]$ and that the Greek Fseq has the more complex gender feature $[\pm\text{fem}, \pm\text{masc}]$. A masculine Arabic AP is, therefore, specified for $[-\text{fem}]$, while a feminine Arabic AP bears $[\text{+fem}]$. A Greek AP, on the other hand, is $[-\text{fem}, \text{+masc}]$ if it is masculine, $[\text{+fem}, -\text{masc}]$ if feminine and, finally, $[-\text{fem}, -\text{masc}]$ when neuter.

The proposal, then, is that the selectional properties of Agr^0 are sensitive to the presence or absence of $[\text{masc}]$. If $[\text{masc}]$ is absent from the AP as in (33), the FP is merged with an Agr^0 that bears $[\text{uN}]$ and consequently, movement is obligatory. If, however, the AP has the more complex gender feature $[\pm\text{fem}, \pm\text{masc}]$, then the FP is merged with an Agr^0 that optionally comes with $[\text{N}]$, in which case the NP will optionally move as in (34).

(33) *axmar* (Arabic)
red.MASC.SG

(34) *prasino* (Greek)
green.MASC.SG



What is therefore claimed in this section is that the different requirements for movement associated with each Fseq stem from a featural distinction.

4. Summary and final remarks

In this paper I proposed that there are two Colour positions in CMA. One position is found to the right of Nationality and the other to its left. I have argued that this does not pose a problem for the idea that there is a universal order, as the two Colour positions essentially belong to two separate Fseqs, each of which adheres to the universal order.

The Arabic Fseq consists of the classes for Quality, Size and Arabic Colour, while the Greek Fseq accommodates the classes for Shape, Greek Colour and Nationality. The Greek Fseq is embedded inside the Arabic Fseq, which is why we find an apparent violation of the universal order.

The two Fseqs differ morphologically, but also with regards to syntax. I claimed that this is

due to a featural distinction of gender. In particular, I proposed that the gender feature for the Arabic Fseq is $[\pm\text{fem}]$, while in the Greek Fseq it is specified as $[\pm\text{fem}, \pm\text{masc}]$. The absence or presence of $[\text{masc}]$ determines whether the Agr heads will bear $[\text{N}]$ or $[\text{uN}]$. If $[\text{masc}]$ is absent, Agr^0 will bear $[\text{uN}]$ and this results in NP-movement above the AP, to Spec,Agr, in order for the NP to license this feature. If, on the other hand, $[\text{masc}]$ is present, Agr^0 will optionally be merged bearing $[\text{N}]$ and as a result the NP stays in-situ.

A positive consequence of the analysis presented here is that it helps us interpret the difference in acceptability judgements by taking into account the number of violations that occur in each instance. In this paper we came across unacceptable phrases, some of which were marked with ?? and others with *. Consider the phrases in (35) where two native Arabic adjectives are used. In the first case, the unacceptability of the phrase is marked with ??, as the adjectives violate the unmarked order of adjectives in CMA. In the second example, the phrase is again marked with ??, since the adjectives appear prenominally and as we have seen this entails that the $[\text{uN}]$ on the Agr heads remains unlicensed, which causes the derivation to crash.

- (35) a. ??t^havli li-ybir k^haes (1 violation: Adj order)
 table.DEF the-big nice.DEF
- b. ??k^haes li-ybir t^havli (1 violation: $[\text{uN}]$)
 nice.DEF the-big table.DEF
- c. *li-ybir k^haes t^havli (2 violations: $[\text{uN}]$, Adj order)
 the-big nice.DEF table.DEF
 ‘the nice big table’

So far, each phrase makes a single violation. The phrase in (35c), however, makes two violations; firstly, the adjectives appear prenominally which means that the $[\text{uN}]$ on the Agr heads again remain unlicensed, and, additionally, the adjectives appear in the wrong order. This accounts for why (35c) is worse than the first two phrases.

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Fryni Panayidou
 Queen Mary University of London
f.panayidou@qmul.ac.uk
<http://webspacespace.qmul.ac.uk/fpanayidou>

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Dennis Pauly

Prospective *um*-clauses as syntactically unintegrated clauses

In this paper, the differences between two kinds of *um*-clauses will be examined. After showing that there is a semantic difference between purpose and prospective clauses introduced by *um*, I will prove this difference to be reflected in their respective clause linkage status by using several well-known criteria. While purpose clauses are subordinated, prospective clauses constitute a non-canonical clause type. Finally, I show how these syntactical differences could be modeled within a theoretical framework.

1. Introduction

Over recent decades, clause linkage phenomena have played a major role in investigating syntactic structures. This led to a number of publications focussing on typological (cf. Christofaro 2003; Haiman & Thompson 1984; Lehmann 1988; Van Valin 1984) as well as German-specific aspects (cf. Fabricius-Hansen 1992; Holler 2008; König & van der Auwera 1988; Reis 1997) of complex sentences. As different as the individual findings of these studies may be, they all have one thing in common, namely the abolition of the traditional dichotomy between subordinate and coordinate clauses.

In this contribution, I will compare two different clause type patterns, purpose and prospective clauses, with respect to their clause linkage status. Although these types may look identical at first glance, there are indeed significant differences concerning their respective dependency on the matrix clause to be pointed out. Prospective clauses will turn out to represent an instance of clause linkage that can neither be regarded as coordinate nor subordinate.

This article is structured as follows: In section 2, I will introduce the different instances of clauses that can be built by using the subjunction *um*. The purpose of section 3 is twofold: Section 3.1 deals with the distinction of different clause linkage types in general. Section 3.2, on the other hand, shows how to analyze the subordinate status of certain *um*-clauses on the basis of the aforementioned distinction. Section 4 discusses the theoretical implications of this analysis. Finally, this article closes with a short conclusion summarizing the main points of this paper.

2. Instances of clause types using *um*

Generally, German *um*-clauses are closely associated with purpose clauses. Purpose clauses usually express an intention (1a). Here, the subordinate clause indicates that the teenagers went to a specific place with the intention of skateboarding. Less frequent usages of *um*-clauses include the teleological usage (1b) and the usage in contexts of necessity (1c) (Leys 1988).¹

- (1) a. Er war zusammen mit zwei anderen Jugendlichen dort gewesen, um
 he AUX together with two other teenagers there been in order
 Skateboard zu fahren.
 skateboard to ride
 ‘He was there with two other teenagers in order to ride skateboard.’
 (X99/JAN.00127)²
- b. Pflanzen brauchen saubere Blätter, um genug Sauerstoff aufnehmen zu
 plants need sober leaves in order enough oxygen carry to
 können.
 can
 ‘Plants need clean leaves in order to be able to carry oxygen.’ (RHZ07/JAN.04153)
- c. Man muss diesen Bericht zweimal lesen, um ihn zu verstehen.
 one must this report twice read in order it to understand
 ‘One has to read this report twice in order to understand it.’ (A97/APR.00947)

A property specific to non-finite purpose clauses is their interchangeability with finite *damit*-clauses (2).

- (2) a. Er war zusammen mit zwei anderen Jugendlichen dort gewesen, **damit** sie Skateboard fahren können.
 b. Pflanzen brauchen saubere Blätter, **damit** sie genug Sauerstoff aufnehmen können.
 c. Man muss diesen Bericht zweimal lesen, **damit** man ihn versteht.

In contrast to purpose clauses, *um*-clauses like (3) cannot be traced back to the semantic relationships mentioned above. The dependent clause neither defines the purpose of the main clause nor is there an interpretation in terms of teleology or necessity possible. Instead, the relationship between main and subordinate clause seems to be a chronological one.

- (3) Bereits zwei Mal wurde die Veranstaltung eingestellt, um dann doch wieder
 already two times AUX the event cancelled only then nevertheless again
 aufgenommen zu werden.
 resumed to AUX
 ‘The event has been cancelled twice only to be resumed again.’ (NUN06/DEZ.02571)
 ↗ The event has been cancelled with the intention to be resumed.

¹It is also possible for certain *um*-clauses to function as complements or as speech-act adverbials. As these usages are irrelevant for this paper, they will not be mentioned any further. See Leys (1991) for more information on that.

²All examples are taken from the COSMAS II corpus (<http://www.ids-mannheim.de/cosmas2/>).

Evidence for this interpretation comes from data like (4). The *um*-clause can be replaced by a coordinate structure without changing the meaning of the complex sentence. This not only suggests a chronological (and modal) relationship between main and *um*-clause, but further shows that the *um*-clause may not be a canonical subordinate clause. Due to their chronological characteristics, Leys (1988) calls them ‘prospective clauses’.

- (4) a. Sie stellte den Regenschirm neben sich, um ihn dann doch zu
 she put the umbrella next herself only it then nevertheless to
 vergessen.
 forget
 ‘She put the umbrella right next to herself only to forget it anyway.’ (Leys
 1988:97)
- b. Sie stellte den Regenschirm neben sich **und sollte** ihn dann doch
 she put the umbrella next herself and should it then nevertheless
 vergessen.
 forgets
 ‘She put the umbrella right next to herself and should forget it anyway.’ (ibid., 98)

Data like (5) constitute additional evidence for the fact that prospective clauses represent a different pattern than purpose clauses: A prospective clause cannot be replaced by a finite *damit*-clause without changing its semantics. If one does so, the subordinate clause must be interpreted as a purpose clause.

- (5) #Sie stellte den Regenschirm neben sich, damit sie ihn dann doch vergisst.
 she put the umbrella next herself in order she it then nevertheless forgets
 ‘She put the umbrella right next to herself in order to forget it.’

For most *um*-clauses, it is obvious whether they represent instances of purpose or prospective clauses. There are, however, some exceptions to this: (6) shows such an ambiguous case. The clause *um dort sehr schnell zu heiraten* can either be interpreted as purpose (6a) or prospective clause (6b).

- (6) Sie zog nach Amerika, um dort sehr schnell zu heiraten.
 she moved to America in order/ only there very fastly to marry
 ‘She moved to America, in order/only to marry shortly after.’ (Leys 1988:100)
- a. → She moved to America with the intention to marry within a short period of time.
 b. → She moved to America and it happened that she married shortly after.

To avoid such ambiguity, many prospective clauses contain certain kinds of adverbs. Adverbs like *dann* ‘then’ (7a) and *schließlich* ‘finally’ may serve to emphasize the chronological relationship (7b). Furthermore, adverbs like *doch* ‘nevertheless’ indicate that there is no intentional relationship between *um*- and main clause (7c). A combination of both adverb types is possible, too (7d). Nevertheless, the occurrence of such adverbs is not always necessary to indicate the prospective function. (7e).

- (7) a. (...) Daniel Veillard verlor den ersten Satz mit 6:7, um **dann** den Match noch
 Daniel Veillard lost the first set with 6:7 only then the match still
 6:0/6:1 zu gewinnen.
 6:0/6:1 to win
 ‘Daniel Veillard lost the first set 6-7 only to win the match 6-0/6-1.’
 (A97/MAI.06066)
- b. Er seinerseits erstarrte zur Salzsäule, um **schließlich** nur noch zu
 he for his part turned into a pillar of salt only finally solely still to
 stammeln (...)
 stumble
 ‘For his part, he turned into a pillar of salt only to finally stutter (...).’
 (BRZ08/JAN.03715)
- c. Er (...) hockte sich immer wieder hin, um **doch** kurze Zeit später
 he sat himself always again down only nevertheless short time later
 wutentbrannt wieder aufzustehen.
 angrily again get up
 ‘He sat down again and again only to angrily get up again shortly after.’
 (E96/OKT.26216)
- d. Bereits zwei Mal wurde die Veranstaltung eingestellt, um **dann doch**
 already twice AUX the event cancelled only then nevertheless
 wieder aufgenommen zu werden.
 again resumed to AUX
 ‘The event has been cancelled twice only to be resumed again.’
 (NUN06/DEZ.02571)
- e. Am Ende der zweiten Verabredung fasste sich der bekennende Romantiker
 on the end the second date took himself the confessed romantic
 schließlich ein Herz – um im entscheidenden Moment zu versagen.
 finally a heart only in the crucial moment to fail
 ‘At the end of the date, the self-confessed romantic took heart only to fail at the
 crucial moment.’
 (sueddeutsche.de)

After having examined the semantic differences between purpose and prospective clauses, two open questions remain: (i) Is this difference in meaning reflected syntactically? (ii) How can one account for the fact that prospective clauses can be replaced by coordinate clauses? Is it possible that prospective clauses are in fact coordinate structures? In the next section, after providing some information on clause linkage in German in general, these questions will be answered in detail.

3. Subordinate clauses in German

3.1. How to identify subordinate clauses in German

It is a widely held assumption that German subordinate clauses can be distinguished from coordinate clauses on the basis of two characteristics, namely the position of the finite verb and

the syntactic function within the matrix clause. The former means that there is a verb placement asymmetry between subordinate and main clause. Subordinate clauses usually have their finite verb at the end whereas main clauses typically show V1 or V2. The latter means that the subordinate clause is a constituent of the main clause which is called ‘syntactic embedding’. There are several ways of testing whether a subordinate clause functions as a constituent of the main clause. Here, I will briefly examine three of them: (i) Can the subordinate clause precede the finite verb of the main clause (8a)? (ii) Can the main clause contain a correlative element referring to the subordinate clause (8b)? (iii) Can the subordinate clause be questioned (8c)? Canonical subordinate clauses like the complement clause in (8) pass all these tests.

- (8) Ich bezweifle, dass das wahr ist.
 I doubt that this true is
 ‘I doubt that this is true.’
- a. Dass das wahr ist, **bezweifle** ich.
 that this true is doubt I
- b. Ich bezweifle **es**, dass das wahr ist.
 I doubt CORR that this true is
- c. **Was** bezweifle ich? Dass das wahr ist.
 What doubt I that this true is

There are, however, clauses that do not fit into the coordination-subordination dichotomy. V1-conditionals represent one much-discussed instance of this phenomenon (9). Despite being a dependent clause, they show V1. On the other side, they seem to be embedded into their host clause, meaning that they represent a constituent of the main clause.³

- (9) Glaubt man den Plakaten, jagt ein Großereignis das nächste.
 Believes one the placards chases one mega-event the next
 ‘If one may trust the placards, one mega-event is chasing the next.’ (Axel & Wöllstein 2009)

A diametrically opposed example is shown in (10): Continuative relative clauses (Brandt 1990; Holler 2005) formally fit into the subordinate pattern because they show V final. On the contrary, there is clear evidence that this clause type is not syntactically embedded into its host clause. They cannot stand in the prefield (10a), it is not possible to refer to the clause by placing a correlative in the main clause (10b) and continuative clauses cannot be questioned (10c).

- (10) Ich habe eine Begabung für Kinder und Jugendliche, weshalb ich solche
 I have a talent for children and adolescents which is why I such
 Sachen sehr gerne mache.
 things very gladly do
 ‘I have a talent for children and adolescents which is why I love doing such things.’
 (A98/JAN.02330)

³Axel & Wöllstein (2009) and Reis & Wöllstein (2010), however, argue that V1 conditionals are syntactically unintegrated, too. See their papers for details.

- a. *Weshalb ich solche Sachen sehr gerne mache, habe ich eine Begabung für
 which is why I such things very gladly do have I a talent for
 Kinder und Jugendliche.
 kids and adolescents
- b. *Ich habe #deshalb/*so/... eine Begabung für Kinder und Jugendliche,
 I have CORR a talent for kids and adolescents
 weshalb ich solche Sachen sehr gerne mache.
 which is why I such things very gladly do
- c. Inwiefern/warum/unter welchen Umständen habe ich eine Begabung für
 to what extent/why/under which circumstances have I a talent for
 Kinder und Jugendliche? *Weshalb ich solche Sachen sehr gerne mache.
 kids and adolescents which is why I such things very gladly do

The type of clause linkage illustrated in (9) and (10) is called ‘non-canonical’. Such exceptions within the coordinate-subordinate dichotomy have led researchers to the conclusion that the traditional dichotomy must be extended in order to account for every single clause-linkage pattern. One example of such an extension would be the approach by Van Valin (1984) which can be seen in table 1. Van Valin (1984) assumes there is at least one additional clause linkage pattern, namely ‘Co-Subordination’. Due to the two criteria used, it would, furthermore, be possible to have one more clausal relationship, as indicated by ‘???’.

	formal integration	syntactic integration
Subordination	+	+
Co-Subordination	+	–
???	–	+
Coordination	–	–

Table 1: Clause linkage according to Van Valin (1984)

Following Fabricius-Hansen’s (1992) and Reis’ (1997) work on German, I assume that clause linkage is a multi-layered phenomenon which should be examined from different angles by using several syntactic and pragmatic diagnostics. In 3.2, I will apply these diagnostics to show that there is a difference between purpose and prospective clauses with regard to the notion of clause linkage.

3.2. *The properties of um-clauses*

Besides the traditional tests shown in 3.1, a certain set of other diagnostics is considered to be relevant in determining whether a dependent clause represents a canonical or a non-canonical subordinate clause. In the following, I will start by examining the traditional tests and then turn to the additional criteria proposed by, inter alia, Brandt (1990); Fabricius-Hansen (1992); Holler (2008); Reis (1997); Wegener (1993).

Left periphery As is obvious from section 3.1, the placement at the left periphery is one of the key characteristics a canonical subordinate clause has to satisfy. While canonical subordinate clauses can be placed in the prefield of their host clause, non-canonical clauses are usually topologically restricted to the very right (Reis 1997) or very left periphery (König & van der Auwera 1988). As an instance of canonical subordinate clauses, regular purpose clauses can occupy the prefield of their matrix clause (11).

- (11) Um Weltmeister zu werden, muss alles stimmen.
 in order world champion to become must everything be fine
 ‘In order to become world champion, everything has to be perfect.’ (A97/APR.00516)

Prospective clauses, however, do not show this property. In the corpus, there were no examples of prospective clauses preceding the finite verb of the main clause to be found. If a prospective clause like (7d), here repeated as (12a), is put in front of its host clause, it loses its prospective meaning and is understood as a purpose clause (12b).

- (12) a. Bereits zwei Mal wurde die Veranstaltung eingestellt, um dann doch
 already twice AUX the event cancelled only then nevertheless
 wieder aufgenommen zu werden.
 again resumed to AUX
 ‘The event has been cancelled twice only to be resumed again.’
 (NUN06/DEZ.02571)
- b. #Um dann doch wieder aufgenommen zu werden, wurde die
 in order then nevertheless again resumed to AUX AUX the
 Veranstaltung zwei Mal eingestellt.
 event twice cancelled
 ‘In order to be resumed again, the event has been cancelled twice.’

Correlative Subordinate clauses generally allow for correlatives in the matrix clause, including pronouns like *es* ‘it’ or adverbs like *deshalb* ‘therefore’. While a matrix clause can have correlatives referring to a purpose clause (13a), this is not possible for prospective clauses. Inserting a correlative into the main clause of a complex sentence containing a prospective clause (13b) yields the interpretation that the correlative must refer to the subordinate clause. Consequently, the prospective clause must be reinterpreted as a purpose clause.⁴

⁴A second possible interpretation would be that the correlative is, in fact, no correlative, but merely an adverb anaphorically referring to a (causal) constituent that was mentioned before, as can be seen in (i):

- (i) Bereits zwei Mal wurde die Veranstaltung darum/deshalb eingestellt, um dann doch wieder
 already twice AUX the event therefore/hence cancelled in order then nevertheless again
 aufgenommen zu werden.
 resumed to AUX
 ‘The event has therefore been cancelled twice in order to be resumed again.’

- (13) a. Als Konzertort wurde der Club **deshalb** gewählt, um das Konzert somit
 As venue AUX the club CORR chosen in order the concert thus
 auch öffentlich machen zu können.
 also publicly make to can
 ‘The club was chosen CORR to be the venue in order to be able to publicize the
 concert.’ (A98/JAN.02032)
- b. #Bereits zwei Mal wurde die Veranstaltung **darum/deshalb** eingestellt, um
 already twice AUX the event CORR cancelled in order
 dann doch wieder aufgenommen zu werden.
 then nevertheless again resumed to AUX
 ‘The event has been cancelled CORR twice in order to be resumed again.’

Question-answer pairs Clauses functioning as adjuncts or complements can usually be questioned as I have shown in 3.1. This is why it is not surprising that purpose clauses, as an instance of adjunct clauses, also show this property (14a). As expected, prospective clauses do not have this characteristic because there is no appropriate interrogative word available. If either *weshalb* ‘why’ or *zu welchem Zweck* ‘for what purposes’ is used, then the *um*-clause providing the elliptical answer cannot have a prospective semantics anymore (14b).

- (14) a. Warum beschäftigen wir uns mit Kunst? Um unsere Grenzen zu
 Why deal we ourselves with art in order our borders to
 überschreiten (...).
 cross
 ‘Why do we deal with art? In order to cross the borders.’ (A99/JAN.03728)
- b. Weshalb/ zu welchem Zweck wurde die Veranstaltung eingestellt? #Um
 why/ for what purpose AUX the event cancelled in order
 dann doch wieder aufgenommen zu werden.
 then nevertheless again resumed to AUX
 ‘Why/for what purposes has the event been cancelled twice? In order to be
 resumed again.’

Scope of negation The scope of negation is another criterion for testing a clause’s embeddedness which is used by Wegener (1993); Holler (2008); Axel & Wöllstein (2009). The basic assumption behind this criterion is the following: Complement and adjunct clauses may show a wide negation scope, meaning that a negative particle within the matrix clause may scope over the subordinate clause, too.⁵ Non-canonical clauses, on the contrary, can never be in the scope of a negative particle located in the matrix clause.

⁵It is, however, not the case that canonical subordinate clauses must always show a wide negation scope (i). The point is that it is generally possible.

- (i) Viele Leute hören das nicht gern, weil sie gleich Verrat an der Demokratie wittern.
 many people hear this not gladly because they immediately treason on the democracy scent
 ‘Many people do not like to hear this because they scent treason to democracy.’ (A97/APR.00399)
 → ‘It is not the case that many people like to hear this (*, because they scent treason to democracy).’

As expected, a negative particle can have scope over a purpose clause. This can be proven by coordinating two *um*-clauses whereby the negative polarity item (NPI) *sondern* serves as a conjunction. Only in case of a wide scope reading can the NPI serve as a conjunction. In (15a), the existence of the NPI *sondern* proves that the negative particle in the matrix clause scopes over the first *um*-clause. Pittner (1999) assumes that prospective clauses behave the same way (15b). But she also admits that it is difficult to clearly distinguish between purpose and prospective clauses in the data provided. In my view, this is the crucial point: (15b) can only be read as having a wide scope if the dependent clause has an intentional meaning.

- (15) a. Ich bin **nicht** hergekommen, um in den Schlagzeilen zu stehen, **sondern**
 I AUX not come here in order in the headlines to stand but
 um gut Tennis zu spielen.
 in order well tennis to play
 ‘I didn’t come here in order to hit the headlines, but rather in order to play some
 good tennis.’ (A97/JUL.12336)
- b. Ich habe den Regenschirm **nicht** mitgenommen, um ihn dann dort
 I AUX the umbrella not taken along in order/only (?) it then there
 zu vergessen.
 to forget
 ‘I did not take the umbrella with me only to forget it anyway.’ (Pittner 1999:289)

Evidence for the narrow scope reading also comes from (16). When forcing the *um*-clause to be under the scope of the negative particle by extending the sentence with the *sondern*-supplement in brackets, the *um*-clause can no longer be interpreted as a prospective clause. Instead, it must ‘turn’ into a purpose clause.

- (16) Der Schiri pfeift **nicht**, um dann im Gegenzug auf der anderen Seite einen mehr
 The referee blows not only then in the response on the other side a more
 als zweifelhaften Strafstoß für Goslar zu verhängen (#, sondern um früher nach
 than doubtful penalty for Goslar to impose but in order earlier to
 Hause zu kommen).
 home to get
 ‘The referee doesn’t blow his whistle only to give a doubtful penalty for Goslar in
 return (#, but rather in order to get home early).’ (BRZ08/ JUL.00514)

Focus-background structure Brandt (1990) and Reis (1997), among others, assume that subordinate clauses are usually integrated into the focus-background structure of their matrix clause whereas non-canonical clauses form their own information unit. The presence of one single information unit corresponds with the presence of one intonation unit, which is why intonation is typically regarded as the main criterion when evaluating the number of information units within one sentence. (17) shows an instance of a purpose clause which clearly indicates the whole sentence to constitute one single intonation unit.⁶ In this regard, it is not relevant whether the main stress lies within the main (17a) or within the subordinate clause (17b).

⁶The main stress is indicated by small caps.

- (17) a. Roca hat Sie im Training sogar geOHRfeigt, um Sie böse zu machen.
 Roca AUX her in the training even boxed in order her angry to make
 ‘Roca even boxed her ear in order to make her angry.’ (A97/ APR.00875)
- b. Roca hat Sie im Training sogar geohrfeigt, um Sie BÖse zu machen.

Prospective clauses, on the other hand, cannot be part of the intonation unit of the main clause. They must have their own focus-background structure and hence build a distinct intonation unit (18), which is a typical feature for non-canonical clauses.

- (18) Ich brauche LANGE, um dann DOCH nicht auf den Punkt zu kommen.
 I need long only then nevertheless not on the point to get
 ‘I need a long time only to miss the point anyway.’ (BRZ05 /NOV.14010)

Variable binding A further characteristic of subordinate clauses is that pronouns within an embedded clause can be bound by quantifiers appearing in the main clause. According to Reis (1997), most non-canonical clauses cannot show this property.⁷ She attributes this to the higher position non-canonical clauses are located in within a tree. Looking at the two different instances of *um*-clauses, such a distinction does not seem to hold because both clause types, purpose (19a) as well as prospective clauses (19b), allow for variable binding.

- (19) a. Zu Kriegsbeginn musste [jeder Dachboden]_i ausgeräumt werden, um
 at start of the war had to every attic cleared AUX in order
 ihn_i im Brandfall schnell löschen zu können.
 it in the case of fire quickly extinguish to can
 ‘At the start of the war every attic had to be cleaned in order to be able to quickly
 extinguish a possible fire.’ (M03/APR.26407)
- b. Ungewollt verschlimmert er [jede Situation]_i, um sie_i schließlich
 unwillingly worsens he every situation only it finally
 doch ebenso ungewollt zu meistern.
 nevertheless equally unwillingly to master
 ‘He unwillingly makes every situation worse only to equally unwillingly manhandle it.’ (WPD/DDD.02634)

If looking at the whole picture, things are not as easy as they may seem. In (20), the quantifier in the matrix clause binds a pronoun within a continuative relative clause. According to Reis (1997) and others, this should not be possible because continuative clauses represent a prototypical example of dependent clauses not allowing for this. On the basis of this finding, one can claim for data like (20) to undermine the hypothesis that non-canonical clauses can never show variable binding – especially if one recognizes the fact that (20) cannot be explained in terms of other approaches such as modal subordination (Roberts 1989) or E-type anaphora (Heim & Kratzer 1998).⁸

⁷In fact, Reis (1997) assumes that there are few non-canonical clauses that allow for variable binding. This fact will be further addressed at a later point.

⁸For modal subordination to apply, a hypothetical common ground or non-factual mood would be needed. Neither phenomenon is given in (20). Furthermore, the universal quantifier *jeder* and the negative quantifier *keiner*

- (20) a. [Jeder Jugendliche]_i im Verein genießt seine besondere Förderung,
 Every adolescent in the club appreciates his special treatment
 wobei er_i von Trainer Heinz Pauker (...) unterstützt wird.
 whereby he through coach Heinz Pauker supported AUX
 ‘Every adolescent in the club appreciates the special treatment whereby he gets
 support by coach Heinz Pauker.’ (RHZ96/MAR.17872)
- b. Sie zeigen [keinen Tatendrang]_i, weshalb sie ihn_i auch bei den
 They show no drive which is why they it also on the
 Menschen nicht wecken können (...).
 people not awaken can
 ‘They show no drive which is why they also cannot generate it in others.’
 (N93/NOV.40591)

Further observations on how variable binding and (non-canonical) clauses are related will be much needed. However, this is beyond the scope of this paper. In this regard, it is only worth noting that data like (20) casts doubt on the claim of certain non-canonical clauses never showing variable binding.

Right periphery Concerning the right periphery, Reis (1997) differentiates between the postfield and two other positions located at the very right of the sentence (cf. table 2). Only subordinate clauses can stand in the postfield whereas non-canonical clauses must be located either in the so-called ‘Nachstellung’ or in ‘Schlussstellung’. It can be tested whether there are any

Postfield	‘Nachstellung’	‘Schlussstellung’
canonical clauses	non-canonical clauses	non-canonical clauses

Table 2: Right periphery according to Reis (1997)

restrictions concerning the placement at the right periphery by looking at complex sentences with multiple dependent clauses modifying the same matrix clause at the right periphery. When located at the right of the matrix clause, subordinate clauses can occur in (almost) any order.⁹ Hence, if the position of two clauses at the right periphery is not interchangeable without changing the semantics, then one of them is not likely to be located in the postfield.

Concerning purpose clauses, Pittner (1999) shows that they behave as to be expected from subordinate clauses. A purpose clause can follow (21a) or precede (21b) a complement clause at the right periphery. Since complement clauses at the right periphery can only be located in the postfield, (21b) is supposed to provide evidence that purpose clauses occur in the postfield, too.

- (21) a. Er hat genommen, was sie ihm anbot, um sie nicht zu beleidigen (...).
 he AUX taken what she him offered in order her not to insult
 ‘He took what she offered him in order to not insult her.’ (Pittner 1999:313)

do not allow for E-type anaphora (Pafel 2005).

⁹It is usually assumed that object clauses must often precede adverbial clauses (Pittner 1999). This, however, does not matter in this context.

- b. Er hat genommen, um sie nicht zu beleidigen (...), was sie ihm anbot. (ibid.)

Prospective clauses, on the other hand, must always follow subordinate clauses at the right periphery (22a). Thus, it is highly unlikely for them to be located in the postfield. If the two dependent clauses switch positions (22b), then the meaning changes: In (22a), the *weil*-clause explains why somebody could not come whereas in (22b) the *weil*-clause serves as an explanation for his appearance. This change in meaning is caused by a change in terms of the depth of embedding. In (22a), both clauses refer to the same matrix clause. In contrast to that, the prospective clause in (22b) serves as the matrix clause of the *weil*-clause, as indicated by the brackets.

- (22) a. [_{S0} Er kündigt an, nicht persönlich kommen zu können, [_{S1} weil er sich gerade auf einer Kreuzfahrt befinde,] [_{S2} um dann doch (...) aus dem Dunkel aufzutauchen (...).]]
 he announces not personally come to can because he himself currently on a cruise is located only then nevertheless out of the dark to appear
 ‘He announces that he cannot appear in person because he currently is on a cruise only to appear out of the darkness.’ (M09/JAN.08176)
- b. #[_{S0} Er kündigt an, nicht persönlich kommen zu können, [_{S1} um dann doch (...) aus dem Dunkel aufzutauchen (...), [_{S2} weil er sich gerade auf einer Kreuzfahrt befinde.]]]
 ‘He announces that he cannot appear in person only to appear out of the darkness because he is currently on a cruise.’

Summary and interim conclusion As I have shown, there are significant differences between purpose and prospective clauses with respect to the criteria used to determine their clause linkage status. Purpose clauses show all properties traditionally attributed to subordinate clauses. Prospective clauses, in contrast, behave diametrically opposed, with variable binding being the only exception (cf. table 3).

	Purpose clauses	Prospective clauses
Left periphery	+	–
Correlative	+	–
Question-answer pairs	+	–
Scope of negation	+	–
Focus-background structure	+	–
Variable binding	+	+
Postfield	+	–

Table 3: Properties of purpose and prospective clauses

Thus, prospective clauses could be labelled as ‘co-subordinate’ according to Van Valin’s (1984) abovementioned typology. Regardless of their formal integration expressed by the positioning of the finite verb, prospective clauses do not show signs of syntactic integration. Reis (1997), on

the other hand, makes a more refined proposal with respect to German clause linkage patterns. She distinguishes between two types of non-canonical clauses, namely ‘relative’ and ‘absolute unintegrated’ ones. Her main criteria to differentiate between these clause types can be seen in table 4.

	canonical	relative unint.	absolute unint.
Constituent of the main clause	+	–	–
No own focus-background structure	+	+	–
Variable binding	+	+	–
Postfield	+	–	–
‘Nachstellung’	–	+	–
‘Schlusstellung’	–	–	+

Table 4: Clause linkage according to Reis (1997)

Dependent V2 clauses (23a) or free *dass*-clauses (23b) would be examples of relative unintegrated clauses whereas continuative relative clauses like (10) – here repeated as (23c) – would depict instances of absolute unintegrated clauses.

- (23) a. Ich glaube, er hat recht.
 I believe he is right
 ‘I believe he is right.’ (Reis 1997:121)
- b. Er muss im Garten sein, daß er nicht aufmacht.
 He must in the garden be that he not opens
 ‘He must be in the garden because he does not open the door.’ (ibid.:132)
- c. Ich habe eine Begabung für Kinder und Jugendliche, weshalb ich solche
 I have a talent for children and adolescents which is why I such
 Sachen sehr gerne mache.
 things very gladly do
 ‘I have a talent for children and adolescents which is why I love doing such things.’
 (A98/JAN.02330)

According to this terminology, prospective clauses would most likely fall into the category ‘absolute unintegrated’ because they have their own focus-background structure and they are confined to the very right periphery.¹⁰ However, an accurate classification would not be possible because prospective clauses do not meet the requirements for absolute unintegrated clauses in

¹⁰(i) gives evidence for prospective clauses being confined to ‘Schlusstellung’. They always have to follow clauses in ‘Nachstellung’.

- (i) a. Früher habe ich geglaubt, er liebe mich wirklich, um dann doch wieder enttäuscht
 In the past AUX I believed he loves me really only then nevertheless again disappointed
 zu werden.
 to AUX
 ‘In the past, I believed that he would really love me only to get disappointed again.’
- b. *Früher habe ich geglaubt, um dann doch wieder enttäuscht zu werden, er liebe mich wirklich.

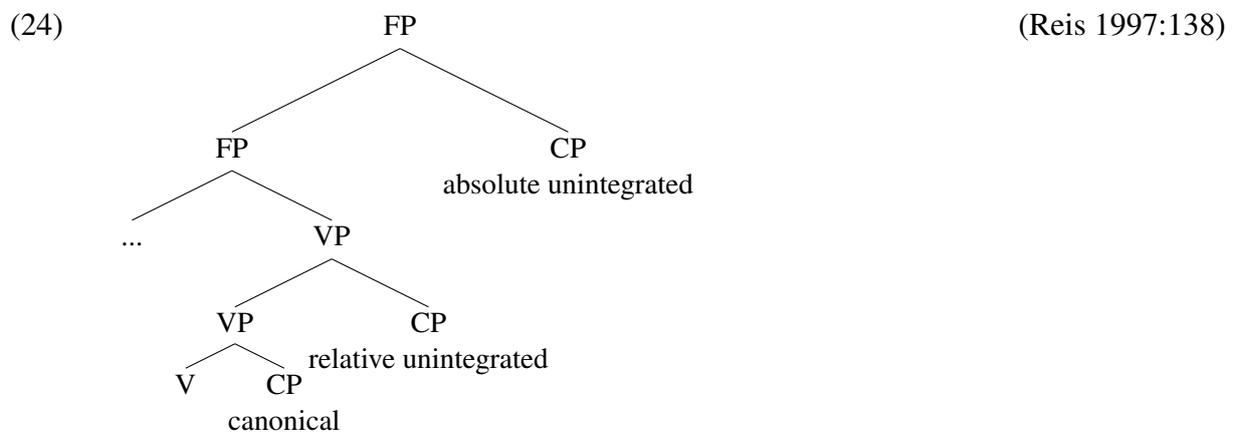
terms of variable binding.

4. A possible account for prospective clauses

After examining the differences between purpose and prospective clause with respect to their clause linkage properties, the question is how to model these differences within a theoretical framework. In this section, I will first present two ways of doing so: First, the traditional approach by Reis (1997) will be considered. After that, a still preliminary version of an alternative approach will be sketched.

4.1. Reis' (1997) analysis

Reis (1997) assumes that the properties of clause linkage patterns are caused by the position they are located in within a tree. Based on Haider (1994), her analysis differentiates between three distinct positions for clauses: (i) Canonical clauses are located within the VP. (ii) Relative unintegrated clauses are right-adjoint to VP. This accounts for the fact that this clause type cannot be located in the postfield. (iii) Absolute unintegrated clauses are right adjoint to a functional projectional FP. This is due to the assumption that this clause type must be located at the very right of its host clause. Furthermore, this position displays such clauses to have their own focus-background structure and, further, to not allow variable binding.

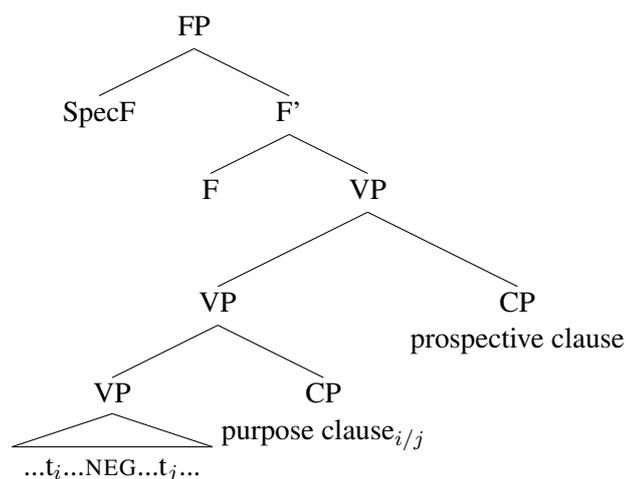


Within this model, purpose clauses would be considered canonical whereas prospective clauses would most likely be considered absolute unintegrated. Prospective clauses, however, do not completely fit into this category because the high attachment site would also imply that variable binding is not possible. As already mentioned in 3.2, variable binding seems to be a criterion which must be further evaluated.

4.2. Another (preliminary) approach

Another option would be to retain the basic concept of Reis (1997), but to rely on other criteria rather than variable binding. The analysis in (25), which is based on Sternefeld (2008, 2009), takes into account that prospective clauses can never be in the scope of a negative particle. There are two possible positions in which purpose clauses as adjuncts can be base-generated, depending on their negation scope (Pittner 1999). Since adjuncts can show either narrow or wide negation scope, they can be base-generated in position t_i or in position t_j depending on their respective scope properties. In a next step, the clause is right adjoint to VP if located in the postfield. Prospective clauses, however, differ from purpose clauses in several respects, the most important ones being their restrictions concerning negation scope and topology. These restrictions must be taken into account when evaluating where prospective clauses are attached. Prospective clauses cannot be base-generated in VP because (i) they can never be in the scope of a negative particle, (ii) they are never licensed by the main verb of the matrix clause and (iii) they can never occur in the middlefield. Instead, they must be right-adjoint to VP but on a higher node than right-peripheral purpose clauses. This further accounts for the fact that they must always follow canonical clauses at the right periphery.

(25)



5. Outlook

In this paper, I pointed out that there are two discrete instances of *um*-clauses in German, showing semantic as well as syntactic differences. While purpose clauses are traditional subordinate clauses, prospective clauses are non-canonical clauses. This difference becomes apparent when looking at several criteria, e.g. the position at the right periphery, the focus-background structure or the negation scope. Therefore, I claim the difference between both clause types to be not only limited to their respective semantics but also to be reflected in their clause linkage relations. Those differences with respect to their syntactical properties can in turn be modeled within a theoretical framework, as I showed in section 4.

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Dennis Pauly
University of Potsdam
denpauly@uni-potsdam.de

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Romance double object constructions and transitivity alternations

Anna Pineda

Abstract

This paper discusses a new approach to Romance ditransitive constructions and argues against a quite general trend, which consists of attempting to mirror English facts by identifying clitic-doubled Spanish ditransitive constructions as Double Object Constructions (DOC), and non-doubled ones as Prepositional Constructions (PC) (Masullo 1992, Demonte 1995, Romero 1997, Cuervo 2003a,b). After a careful examination of the data, it is argued that Romance (Spanish, French and Catalan) ditransitive constructions instantiate DOC, whether they bear clitic doubling or not. Pronominalization facts in Catalan will support this analysis. Finally, a connection between this new view on Romance ditransitive constructions and some dative/accusative alternations in the area is presented.

1. Introduction

The purpose of this paper is to provide evidence for a new view on Romance double object constructions (DOC). Against the general trend, I do not try to prove the existence of Romance DOC by comparing it to the well-known English-like dative alternation. Instead, I propose a new approach to Romance ditransitive constructions (DitrC) in general.

Though DOC has been traditionally considered absent in the Romance area (Kayne 1984), several researchers have claimed that Spanish does indeed have it (Masullo 1992, Demonte 1995, Romero 1997). More recently, on the basis of Pylkkänen's (2002) work, this notion has again surfaced (Cuervo 2003a,b). Specifically, it has been claimed that those syntactic and semantic differences found between DOC and the prepositional paraphrase (PC) in English (1) can also be found in Spanish (2). Thus, while in English the alternation is reflected at the surface level by word order and the presence of *to*, the equivalents in Spanish are presumed to be distinguished only by the presence of a dative clitic:

- | | |
|------------------------------------------|----------------------------------------|
| (1) a. <i>John gave the book to Mary</i> | (PC, DO asymmetrically c-commands IO) |
| b. <i>John gave Mary the book</i> | (DOC, IO asymmetrically c-commands DO) |

- (2) a. *Juan dio el libro a María.* (PC, DO asymmetrically c-commands IO)
 Juan gave the book PREP María
 ‘Juan gave the book to Mary.’
 b. *Juan le dio el libro a María.* (DOC, IO asymmetrically c-commands DO)
 Juan CL_{DAT} gave the book PREP María
 ‘Juan gave María the book.’

However, all these approaches insist on comparing Romance DitrC with the English alternation, and as a consequence they are forced to search for properties parallel to those found in English. Alternatively, I propose to uncover the real inherent properties of the construction: with a more semantic and less restrictive definition, it will be possible to detect DOC in a larger number of languages. Basing my approach on data from Catalan and European Spanish,¹ I reject the equivalence between (1) and (2) and instead argue that though they both have DOC, crucially, this construction may appear with or without a dative clitic.

2. Evidence supporting my hypothesis

The fact that the presence/absence of the clitic does not have any structural consequences is clearly shown by the existence of bidirectional c-command. As is well known, in French (3) and Italian (4) DitrC there is bidirectional c-command between DO and IO:²

- (3) a. *Marie a donné son_i crayon à [chaque garçon]_i.*
 Marie gave his pencil PREP every boy
 ‘Marie gave every boy his pencil.’
 b. *Jean a présenté [chaque institutrice]_i à ses_i élèves.*
 Jean introduced every teacher PREP her students
 ‘Jean introduced every teacher to her students.’

(Harley 2002:62)

- (4) a. *Una lunga terapia psicoanalitica ha restituito Maria_i a se stessa_i.*
 A long therapy psychoanalytic restored Maria PREP herself
 ‘A long psychoanalytic therapy restored Maria to herself.’

¹ Most works on Spanish dative clitic doubling (DCD) base themselves on American Spanish, whereas I explicitly refer to European Spanish. The existence of an important dialectal difference regarding this phenomenon has been noted by Becerra Bascañán (2006), and a corpus-based study by Aranovich (2011:152) clearly supports the idea that it is much more common in the American varieties. Likewise, Flores & Melis (2004) and Melis & Flores (2009), who study the process of grammaticalization and the current distribution of the DCD, reach the same conclusion: according to them, DCD is a repair strategy whose purpose is to restore the case difference between DO and IO nominal objects; thus it is expected to be more common in dialects where *le* (dative) and *lo* (accusative) contrast, rather than in the so-called *leísta* varieties, where *le* is used for both dative and accusative case values and the case difference in pronouns is diluted, with the result that the need to restore the distinction in nouns is not so strong, and anyway the use of *le* would not help much. Indeed, Melis & Flores’s prediction is borne out, since (broadly speaking) *leísmo* is present in Spain and absent in America, according to the *Diccionario Panhispánico de Dudas* (RAE, 2005).

² Throughout all of sections 2 and 4, I will use the most faithful English translations, maintaining always the DOC/PC distinctions that the original authors in Romance languages intended to mark. When those translations are not grammatical in English, I will mark them as ‘(lit.)’ and provide an additional, grammatical sentence.

- b. *Una lunga terapia psicoanalitica ha restituito se stessa_i a María_i.*
 A long therapy psychoanalytic restored herself PREP Maria
 ‘A long psychoanalytic therapy restored herself to Maria.’

(Giorgi & Longobardi 1991:42)

I argue that the same occurs in Catalan as well as in Spanish and, importantly, I state that the differences in c-command facts are not related to the presence/absence of the dative clitic. A careful examination of the examples and grammaticality judgments found in the above-mentioned authors’ studies coupled with (European) Spanish speakers’ judgments and a few examples obtained by means of Google searches will lead me to conclude that the alleged structural differences between the doubled construction and the non-doubled one are nonexistent. Likewise, the same conclusion holds for Catalan. Among the several phenomena in which structural differences are presumed to show up, I will refer to anaphors, binding of possessives and availability of distributive readings, frozen scope and passivization, as well as lexical-semantic differences.

2.1. Anaphoric phenomena

Building on Barss & Lasnik (1986) and Giorgi & Longobardi (1991), Demonte (1995) tries to show that Spanish doubled and non-doubled ditransitives parallel English DOC and PC for anaphors, so that in the doubled one (alleged DOC) only DO anaphor is possible (because IO asymmetrically c-commands it) (5), whereas in the non-doubled one (alleged PC) only IO anaphor is possible (because DO asymmetrically c-commands it) (6):³

- (5) a. **El tratamiento le devolvió [DO a María_i] [IO a la estima de sí misma_i].*
 The therapy CL_{DAT} gave-back PREP_{DOM} María to the esteem of herself
 ‘The therapy gave the esteem of herself María back.’
 b. ^{ok}*El tratamiento le devolvió [DO la estima de sí misma_i] [IO a María_i].*
 The therapy CL_{DAT} gave-back the esteem of herself PREP María
 ‘The therapy gave María the esteem of herself back.’
- (6) a. ^{ok}*El tratamiento devolvió [DO a María_i] [IO a sí misma_i].*
 The therapy gave-back PREP_{DOM} María PREP herself
 ‘The therapy gave María back to herself.’
 b. **El tratamiento devolvió [DO a sí misma_i] [IO a María_i].*
 The therapy gave-back PREP_{DOM} herself PREP María
 ‘The therapy gave herself back to María.’

(Demonte 1995:10)

Demonte (1995:10) rejects (6b) and accepts the corresponding doubled form (5b) but she changes the sentence: DO is not *a sí misma* anymore but *la estima de sí misma*. The crucial fact is that if the same change is applied to (6b), the resulting sentence is clearly grammatical (7a), whereas if the reverse change is applied to (5b) the resulting sentence is ungrammatical (7b):

³ Note that DO *María* and *sí misma* in (5) and (6) bear Differential Object Marking (the preposition *a*), noted in the glosses as PREP_{DOM}.

- (7) a. ^{ok}*El tratamiento devolvió* [DO *la estima de sí misma*_i] [IO *a María*_i]. (cf. (6b))
 The therapy gave-back the esteem of herself PREP María
 ‘The therapy gave the esteem of herself back to María.’
 b. ^{*}*El tratamiento le devolvió* [DO *a sí misma*_i] [IO *a María*_i]. (cf. (5b))
 The therapy CL_{DAT} gave-back PREP_{DOM} herself PREP María
 ‘The therapy gave María herself back’

Therefore, far from being related to an alleged structural difference caused by the presence/absence of dative clitic doubling (DCD), differences in grammaticality of anaphoric phenomena seem to be related to a difference in internal structure between the two kinds of reflexives: from examples above we can deduce that for a DO anaphor to be grammatical it must be *la estima de sí misma* and for an IO anaphor to be grammatical it must be *a sí misma*, whether there is dative clitic or not. This prediction is borne out: if we change (6a) it loses its grammaticality (8a), and if we change (5a) it becomes grammatical (8b):

- (8) a. ^{??}^{*}*El tratamiento devolvió* [DO *a María*_i] [IO *a la estima de sí misma*_i]. (cf. (6a))
 The therapy gave-back PREP_{DOM} María PREP the esteem of herself
 ‘The therapy gave María back to the esteem of herself.’
 b. ^{ok?}*El tratamiento le devolvió* [DO *a María*_i] [IO *a sí misma*_i]. (cf. (5a))
 The therapy CL_{DAT} gave-back PREP_{DOM} María PREP herself
 ‘The therapy gave herself María back.’

Moreover, the difference between the two reflexive forms *la estima de sí misma* and *sí misma* is also reflected in their divergence in terms of the presence of *a* in the DO (Differential Object Marking, DOM). Crucially, for some semantic or interpretational reason, sentences with two phrases headed by *a* are generally (but not always) rejected. Likewise, Aranovich (2011:77-78) claims that ‘it is not clear if the data regarding Spanish reflexives are analogous to those of English’ and points out that ‘a ditransitive construction with both theme and recipient introduced by *a* is difficult to process and hardly acceptable, independently of the occurrence of DCLD [dative clitic doubling]’:

- (9) a. [?]*(Le) mostré* [DO *a Juan*] [IO *a sí mismo (en el espejo)*].
 (CL_{DAT}) (I) showed PREP_{DOM} Juan PREP himself (in the mirror)
 ‘I showed John to himself (in the mirror).’
 b. [?]*(Le) mostré* [DO *a sí mismo*] [IO *a Juan (en el espejo)*].
 (CL_{DAT}) (I) showed PREP_{DOM} himself PREP Juan (in the mirror)
 ‘I showed John to himself (in the mirror).’

(Aranovich 2011:78)

In conclusion, in the very complex realm of reflexives, where different factors intervene, the presence or absence of DCD plays no relevant role.

2.2. Binding and distributive readings of possessive pronouns

Barss & Lasnik (1986) observe that in English the grammaticality of distributive readings and (quantifier) binding of pronouns in DOC is restricted to pronouns in DO, whereas in PC the reverse is true, due to a different positioning of objects. Demonte (1995) attempts to juxtapose this onto Spanish DitrC with and without a dative clitic respectively:

- (10) a. ^{ok}*La profesora le pasó a limpio su_i dibujo a cada niño_i.*
 The teacher CL_{DAT} cleaned-up his drawing PREP each child
 ‘The teacher cleaned each child his drawing up.’
- b. [?]*La profesora le pasó a limpio cada dibujo_i a su_i autor.*
 The teacher CL_{DAT} cleaned-up each drawing PREP its author
 ‘The teacher cleaned its author each drawing up.’
- (11) a. ^{*}*La profesora entregó su_i dibujo a cada niño_i.*
 The teacher gave his/her drawing PREP each child
 ‘The teacher gave his/her drawing to each child.’
- b. ^{ok}*La profesora entregó cada dibujo_i a su_i autor.*
 The teacher gave each drawing PREP its author
 ‘The teacher gave each drawing to its author.’

(Demonte 1995:10-11)

With regard to the alleged PC in (11), I do not entirely share Demonte’s judgments, since in European Spanish (11a) is grammatical in a distributive reading, as would be the analogous construction in other Romance languages such as French (see (3a) and also Boneh & Nash to appear⁴). In the case of the alleged DOC in (10), Demonte herself admits that the contrast is not as clear as it would be in English. Aside from the fact that she uses not a ditransitive predicate in (10) but rather a causative one (which according to Cuervo (2003a) is incompatible with DOC⁵), (10b) with a ditransitive verb like *entregar* turns out to be grammatical (even more grammatical than (10a) with *entregar*, see section 4.1), and Bleam (2003) and De Pedro Munilla (2004) agree. The same applies to Catalan (examples from the Barcelona variety of this language):

- (12) a. ^{ok/?}*La professora (li) va donar el seu_i dibuix a cada nen_i.*⁶
 The teacher (CL_{DAT}) gave his/her drawing PREP each child
 ‘The teacher gave his/her drawing to each child.’

⁴ They show that ‘the core dative goal and the theme [...] are not hierarchically ordered’ by means of the following examples:

- (i) a. *La maîtresse a rendu son_i cartable à chaque_i élève.*
 The teacher gave-back his/her schoolbag PREP every pupil
 ‘The teacher gave his/her schoolbag back to every pupil.’
- b. *La maîtresse a rendu chaque_i cartable à son_i propriétaire.*
 The teacher gave-back every schoolbag PREP its owner
 ‘The teacher gave every schoolbag back to its owner.’

(Boneh & Nash to appear:7)

⁵ Cuervo (2003a:93-94) states that Low Applicatives (DOC) are incompatible with causative predicates, wherein ‘[t]he object participates in both events: as an object of the higher causing event, and as a subject of the caused event (the state)’, so that a Low Appl head, which needs an object DP to apply to, ‘cannot merge below the root in this structure because the root does not take a complement’. For such cases, she proposes a new kind of applicative, neither High nor Low, called *Affected Applicative*.

⁶ Although for simplicity reasons we gloss Catalan possessives *el seu* as ‘his/her’, note that they all contain the definite article *el* ‘the’, so that *el seu* literally means ‘the his/the her’.

- b. ^{ok}*La profesora (li) va donar cada dibuix_i al (a + el) seu autor_i.*⁷
 The teacher (CL_{DAT}) gave his/her drawing PREP its author
 ‘The teacher gave each drawing to its author.’

In conclusion, in Spanish and Catalan DitrC both DO and IO can c-command each other regardless of the presence or absence of DCD.

2.3. Frozen scope

In the English dative alternation, possible scopal relations between the two objects differ depending on which variant we deal with (Aoun & Li 1989), so that in PC the scope is free whereas in DOC it is frozen, which means that only the Goal can cover the Theme but not vice versa. Cuervo (2003a:43-44, 2003b:134-135), following Demonte (1995), notes that in Spanish the same effect arises since in the clitic-doubled variant (alleged DOC) only quantifiers in IO can take scope over indefinites in DO (13b), but not the other way round (13a):

- (13) a. *Andrés le mandó cada cuadro a un museo (#distinto).* (*cada > un)
 Andrés CL_{DAT} sent each painting PREP a museum (#different)
 ‘Andrés sent a (#different) museum each painting.’
 b. *Carolina le llevó un artículo (distinto) a cada revista.* (cada > un)
 Carolina CL_{DAT} took an article (different) PREP each magazine
 ‘Carolina took each magazine a (different) article.’
 (Cuervo 2003a:43-44, 2003b:134)

Again, Cuervo’s judgments do not hold for European Spanish. The distributive reading where a quantifier in the DO takes scope over the indefinite in the IO is available, as in (14a), (15a).⁸ These examples, coupled with (14b) and (15b), show the irrelevant role played by the clitic:

- (14) a. *pedir un bloque RIPE de IPs y asignarle cada una a una web [distinta] (cada > un)*
 request a block RIPE of IPs and assign.CL_{DAT} each one PREP a web [different]
 ‘request a RIPE block of IPs and assign a [different] website each one [each IP]’
 (Google)
 b. *la rigidez de quienes desean asignar cada niño a un centro [distinto] (cada > un)*
 the inflexibility of who want assign each child PREP a centre [different]
 ‘the inflexibility of those who want to assign each child to a [different] centre’
 (La Razón, 22-I-2012)
- (15) a. *El director del orfanato le mandó cada niño a una familia distinta. (cada > un)*
 The principal of the orphanage CL_{DAT} sent each child PREP a family different’
 (lit.) ‘The principal of the orphanage sent a different family each child.’

⁷ Note that the preposition *a* followed by the definite article *el* (which is part of the possessive *el seu* ‘his/her’) is written *al*.

⁸ Given that some Spanish speakers (especially but not exclusively those from Catalonia) are reluctant to clitic-double (i.e., treat as datives) Goals in (13) – though they are affected to some degree – I have tested parallel sentences (15) whose IO is clearly distinct from a locative PP.

- ‘The principal of the orphanage sent each child to a different family.’
- b. *El director del orfanato mandó cada niño a una familia distinta.* (*cada > un*)
 The principal of the orphanage sent each child PREP a family different’
 ‘The principal of the orphanage sent each child to a different family.’

Turning to Catalan, these data confirm the claim that the clitic has no influence in scopal relations, with the result that in clitic-doubled sentences both scopal relations are available (examples from the region of Valencia):

- (16) a. *Ton tio li va donar cada regal a un nebot* (*diferent*). (*cada > un*)
 Your uncle CL_{DAT} gave each present PREP a nephew (different)
 (lit.) ‘Your uncle gave a (different) nephew each present.’
 ‘Your uncle gave each present to a (different) nephew.’
- b. *Maria li va enviar un article* (*diferent*) *a cada revista.* (*cada > un*)
 Maria CL_{DAT} sent an article (different) PREP each magazine
 ‘Maria sent each magazine a (different) article.’

In conclusion, DitrC in Spanish and Catalan usually bear free scope, regardless of the clitic (cf. Cuervo (2003a:43-44, 2003b:134), who argues that free scope is only available in non-doubled variants). Interestingly, Fournier (2010:118-119) and Boneh & Nash (to appear) note that, when considering the standard DOC in another Romance language like French (*J’ai donné le livre à Jean* ‘I gave Jean the book’), scopal options differ from what is seen in English DOC, whereas when analyzing French sentences with the (uncommon) order IO>DO the scopal possibilities are the same as in English DOC. Therefore, it seems that scope has to do with final word order. Indeed, this seems to be true even for English: Bowers (2010: 174-177) claims that in PC the movement of the DO to Spec, Voice to value its structural case allows for reconstruction (because it takes place in conjunction with Agree)⁹ and thus accounts for both scope orders, whereas in DOC the movement of the IO to get structural case does not alter the initial c-command relationship between the objects, so only one possible scope relation arises.¹⁰ Crucially, he also shows that a PC with the marked order IO-DO (*Mary gave to a child every doll*) observes exactly the same scope restriction than a DOC (*a>every*, **every>a*), since the IO *to a child* has moved to Spec, Voice (to satisfy the EPP feature of Voice, in Bowers’ (2010) account) and no reconstruction is possible (because it does not take place in conjunction with Agree).

Following all these considerations about French and English, as well as a similar proposal about Spanish (Bleam 2003), I conclude that frozen scope is not an inherent property of the

⁹ Bowers (2010:172) assumes Anand & Nevins’ (2006) PEPPER principle (*Purely EPP Eliminates Reconstruction*), according to which A-movement to satisfy a EPP feature does not allow for reconstruction, whereas if the movement takes places in conjunction with Agree reconstruction is allowed.

¹⁰ Bowers (2010:154) considers that in both DOC and PC there are three primary argument categories: Ag, Appl and Th. Later, he assumes that Appl may select a PP (*to*) or an active DP with a case feature which must be valued: if Appl selects a PP (which receives inherent dative case indirectly via a specific preposition (*to*) selected by Appl) we have PC (and Th selects DP with accusative structural case which must be valued through an Agree relation with Voice), whereas if Appl selects a DP with structural accusative case (its case feature is valued neither directly by Appl nor indirectly by a P selected by Appl, so it must be valued through an Agree relation with Voice), we have DOC (and the Th-DP receives inherent accusative case) (Bowers 2010:164-165). See also Bowers (2010:158-159) for the functional categories he postulates: it is important to note that he does not consider the Agent to be generated in VoiceP (the landing position for a DP valuing its structural accusative case) but in a projection called PredicateP (PrP) found above VoiceP and below TP.

universal DOC but rather a consequence of the order of objects or of informational structure (Goldberg 2006). Thus Spanish and Catalan have frozen scope only in sentences where DO>IO order has been reversed, thus paralleling English DOC word order.

2.4. Passivization

In English DOC, both arguments can passivize.¹¹ However, other Germanic languages which also bear dative alternation (German, Dutch) only allow Theme passivization (in DOC). The same occurs in Romance languages. Spanish allows Theme passivization of a transfer verb irrespective of the presence/absence of the clitic, as Demonte (1995:11-12) shows (17), whereas when predicates with benefactive or interest datives are involved, passivization becomes impossible (18) (as in English *fix*-type predicates):

(17) *El premio Nobel (le) fue concedido a Cela el año pasado.*
 The prize Nobel (CL_{DAT}) was awarded PREP Cela the year past
 ‘The Nobel prize was awarded to Cela last year.’

(18) **La casa le fue pintada a Juan.*
 The house CL_{DAT} was painted PREP Juan
 ‘The house was painted for Juan.’

(19) *La casa fue pintada ayer.*
 The house was painted yesterday
 ‘The house was painted yesterday.’

(Demonte 1995:12)

Predicates in (18) require DCD, which leads Demonte to think that the presence of an affected dative clitic blocks the raising of the internal argument (cf. (19)). What Demonte wants to highlight is that Spanish clitic-doubled DitrC are equivalent to English DOC because in both cases there are constraints on passivization depending on the verb’s lexical type (see (17) and (18)). However, Demonte compares English *fix*-type verbs, which do enter the dative alternation, with a group of Spanish predicates with benefactive/interest datives which, crucially, do not – Demonte (1995:10) herself refers to them as a ‘class of verbs taking benefactive or interest datives, that is, [...] sentences in which the clitic is obligatory’. So, unlike the situation in English (two alternating verb types, *give*-type and *fix*-type, but only one can passivize in DOC), what happens in Spanish is that those verbs which cannot passivize actually do not enter the alleged alternation, with the result that no relevant consequences can be extracted from their behavior. Moreover, although Demonte states that Spanish *fix*-type verbs always require the presence of the affected clitic and that this is why they are instances of the alleged DOC, the crucial fact is that the Spanish speakers I consulted find examples

¹¹ Theme passivization is subject to dialectal variation, and it definitively improves with pronominal Goals. For an account of how this works in British English, see Doggett (2004). Bowers & Georgala (2007:18, fn. 7) claim that ‘although there is clear evidence that *direct passives* exist in American English, and were analyzed in Fillmore (1965) among others, Postal (2004) points out that many linguistic works of the last twenty years deny the existence of American English *direct passives*’.

like (20) perfectly grammatical, and they do not allow passivization (21) despite the lack of a clitic (thus not being comparable to the English DOC under Demonte/Cuervo's view):¹²

(20) *Los trabajadores pintaron la casa a Juan y terminaron enseguida.*

The workers painted the house PREP Juan and finished quickly

'The workers painted the house for Juan and finished quickly.'

(21) **/? La casa fue pintada a Juan (por los trabajadores).*

The house was painted PREP Juan (by the workers)

'The house was painted for Juan (by the workers).'

Along the same lines, Aranovich (2011:38) notes that 'according to Roberto Mayoral Hernández (personal communication) *Juan preparó la comida a María* is acceptable without dative clitic doubling'.

The data from Catalan confirm these facts: the clitic is not compulsory in *fix*-type predicates (22) and passivization remains impossible regardless of the clitic (23):¹³

(22) *Un dels lladres s'ofereix a netejar la taca a la víctima amb un mocador.*

One of the thieves offers to wipe-off the stain PREP the victim with a tissue

'One of the thieves offers to wipe the stain off the victim with a tissue.'

(*El Punt*, 8-X-2009)

(23) **/? La taca és netejada a la víctima.*

The stain is wiped-off PREP the victim

'The stain is wiped off the victim.'

This allows me to conclude that passivization does not make any distinction between doubled and non-doubled ditransitive sentences.

2.5. Lexical-semantic differences

Last but not least, works defending the existence of an English-type DOC in Spanish have attempted to show that DitrC with and without a clitic differ from a lexical-semantic point of view. This follows from the observation by Oehrle (1976) and others that DOC implies some possession relation between the two arguments. This is the so-called Meaning-to-Structure Mapping Hypothesis (Bresnan 2007): the English PC is associated with the notion of change of location, whereas the DOC is associated with the notion of change of possession. Demonte (1995:12-13) explains that in the clitic-doubled variant the dative DP is understood as affected, regarded as either the possessor (24a) or an intrinsic part of the DO argument (25a), and if neither of these interpretations is possible (24b, 25b) the sentence is rejected:

¹² It is worth noting that Demonte compares Spanish and English *fix*-type verbs, whereas Cuervo (2003a:93-94) states that Low Applicatives (DOC) are incompatible with causative predicates, as mentioned in fn. 6.

¹³ Now that we have seen that *fix*-type verbs in Spanish and Catalan may or may not be clitic-doubled, one could argue they thus exhibit the alleged alternation. My answer would be as follows: first, I would show that the Romance DOC cannot be defined exclusively as a clitic-doubled ditransitive; and second, provided we want to defend the view that clitic-doubled ditransitives are DOC, the fact is that passivization constraints are also found in non-doubled ditransitives (21), (23).

- (24) a. *Le regalé un libro a cada uno de los asistentes.*
 CL_{DAT} (I) gav a book PREP each one of the attendees
 ‘I gave each one of the attendees a book.’
 b. *?Le regalé/doné un libro a la biblioteca.*
 CL_{DAT} (I) gave/donated a book PREP the library
 ‘I gave/donated the library a book.’
- (25) a. *Le puse el mantel a la mesa.*
 CL_{DAT} (I) put the tablecloth PREP the table’
 (lit.) ‘I put the table the tablecloth
 ‘I put the tablecloth on the table.’
 b. **Le puse los platos a la mesa.*
 CL_{DAT} (I) put the dishes PREP the table
 (lit.) ‘I put the table the dishes.’
 ‘I put the dishes on the table.’

(Demonte 1995:12)

Along the same lines, Cuervo (2003b:121-124) notes that locatives can be clitic-doubled (thus forming the alleged DOC) only if they are interpreted as a benefactive, a malefactive or a possessor, this is to say if they are affected.¹⁴ However, I will propose that the availability of DCD in such cases can be accounted for by other means (see section 3) and that the lexical-semantic restriction based on affectedness/possession has different degrees of implementation across languages and even across dialects (see section 4). For the moment, let me merely note that Demonte (1995:12) herself judges (24b) as deviant but not ungrammatical, and Cuervo (2003a:78) considers grammatical the parallel example *Pablo le donó un diccionario de portugués a la biblioteca* ‘Pablo donated the library a Portuguese dictionary’. Likewise, in terms of the inter- and intralinguistic variation, note that the Catalonia-Spanish speakers I consulted found (25a) ungrammatical (as French speakers would find the analogous construction) and even some general European Spanish informants found it difficult to accept, despite its containing an affected Goal (against Demonte/Cuervo’s predictions). Also, Catalonia-Spanish does not seem to accept (24b) as grammatical, while speakers from all other varieties of European Spanish do (against Demonte’s predictions). In (26) I provide more Spanish and even Catalan counterexamples to the alleged lexical-semantic restriction on DCD:

¹⁴ In her dissertation, Cuervo (2003a:63-67) herself gives a more fine-grained description of the facts and claims that ‘*affectedness* is not always part of the meaning of possessor datives’ and that ‘it is an indirect consequence of the lexical meaning of the verb, combined with the possessive relation between the direct object and the dative argument expressed by the low applicative construction’. She concludes that the general condition for a Goal to be in the Spanish DOC is ‘the possibility of characterizing it as a recipient or intended possessor’. According to her, ‘the discussion of whether affectedness is part of the meaning of possessor datives resembles the discussion of whether the meaning of the English DOC is ‘cause to have’, i.e., whether successful transfer of possession is a structural meaning’, and in this respect she claims that ‘transfer of possession is not entailed by the DOC construction’, as it can be cancelled (*I wrote Sue a letter but she never got it*, Pylkkänen (2002:20)). As a consequence, whether there is successful transfer of possession depends on the individual verb and is not structurally encoded in the DOC. However, Cuervo (2003a:66) concludes that ‘in cases where there is possibility of alternation between the DOC and the PP variants, the DOC seems to favor a successful transfer reading’.

- (26) a. *los que le han concedido un premio al blog de María Narro.*
 those who CL_{DAT} have awarded a prize PREP the blog of María Narro
 ‘those who have awarded Maria Narro’s blog a prize’
- b. *le han concedido un premio al Skoda Octavia.*
 CL_{DAT} (they) have awarded a prize PREP the Skoda Octavia
 ‘they have awarded the Skoda Octavia a prize.’
- c. *Li han donat un premi a un restaurant de Vilafranca.*
 CL_{DAT} (they) have given a prize PREP a restaurant in Vilafranca
 ‘They have given a restaurant in Vilafranca a prize.’

(Google)

Finally, according to Cuervo (2003b:124), the ‘tight correlation between clitic-doubled dative phrases and benefactive (more generally, affected) interpretation’ accounts for the ungrammaticality of (27), where dead soldiers cannot be (strictly speaking) affected. However, there are many counterexamples (28), both in American and European Spanish:

- (27) *El presidente (*les) ofreció honores a los soldados muertos en el hundimiento.*
 The president (*CL_{DAT}) offered honours PREP the soldiers killed in the sinking
 ‘The president offered honours to the soldiers killed in the sinking.’

(Cuervo 2003b:122)

- (28) a. *El presidente les ofreció las oraciones elegidas a los soldados muertos.*
 The president CL_{DAT} offered the prayers selected PREP the soldiers dead
 ‘The president offered the soldiers [who had] died the prayers selected.’
- b. *un foro para rendirles homenaje a las víctimas de la dictadura*
 a forum to pay.CL_{DAT} tribute PREP the victims of the dictatorship
 ‘a forum to pay the victims of the dictatorship tribute’

(Google)

In conclusion, the difference between Spanish ditransitive variants with and without clitic is by no means as sharply defined as it should be if one variant were DOC and the other PC. To put it in another way, the notion of affectedness/possession and the phenomenon of DCD are not univocally related; ergo DOC and DCD are not univocally related.

3. Proposal

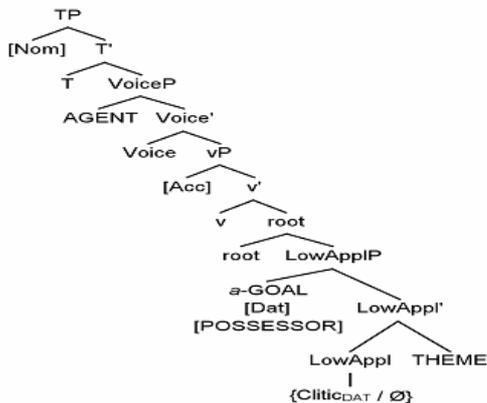
The data presented so far point to the fact that the clitic does not have any influence on the structural position of DO and IO. So there is no parallel to be found exclusively between English DOC and Spanish or Catalan clitic-doubled constructions.¹⁵ This leads me to propose that, irrespective of DCD, Romance ditransitive sentences (with some kind of transfer meaning) are a reflex of DOC, and that no English-like PC ditransitive construction exists.

¹⁵ Crucially, also Beavers & Nishida (2010) note that Spanish clitic-doubled DitrC cannot be compared to English DOC. In fact, they show that there are two kinds of Spanish ditransitives with clitic: one where IO c-commands DO and another one where IO/DO c-command each other.

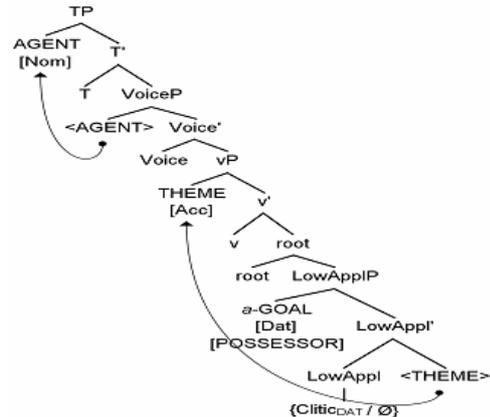
3.1. The analysis

Following Pykkänen (2002), DOC has a Low Applicative Head (LowAppl) which describes an asymmetric possession relation between two items, so a transfer of possession interpretation is involved. This LowAppl assigns inherent case: dative to its Spec in Romance languages (and Recipient/Possessor θ -role), accusative to its Complement in English (and Theme θ -role):

(29) a. Base-generated word order (Romance)



b. Surface word order (Romance)



These case differences explain why in Romance languages it is only DO that can passivize whereas in standard English it is IO.¹⁶ As a consequence of case-checking, Romance DitrC usually reflect DO>IO ordering, because DO has moved up to check its structural case – and, from there, it can go up to passivize. On the other hand, in English-like languages, the item that moves is IO, so final word order will be IO>DO, which happens to be the same as base word order.

As for the Romance non-standard ordering IO>DO, all I have to say is that it does not result from a different base structure, but is related to informational structure considerations. Indeed, in their corpus-based study Beavers & Nishida (2010:5) point out that ‘IO DO order [...] is used overwhelmingly [...] when the DO [...] is heavy’, so it is a semantic/pragmatic issue which ends up moving the DO to the final position, without having any effect on the base syntactic structure.¹⁷

Finally, recall that, according to my proposal, the clitic is not a *sine qua non* condition for DOC in Spanish (and Catalan), but its presence does indicate that we are dealing with an instantiation of DOC. In other words, DOC may bear DCD or not: the clitic is the spell-out of the LowAppl Head, which may be phonologically null or full without further structural consequences.¹⁸ In both cases we have a structure with a dative-marked DP.¹⁹ The optionality

¹⁶ For DO passives, see fn. 11.

¹⁷ Data gathered from the written and oral *Corpus de referencia del español actual*, www.rae.es.

¹⁸ Juan Romero (p.c.) objects that if the clitic is optional I should expect no difference in terms of the licensing of nominal arguments, and he notes that when the clitic is inserted only one of the two objects can bear *a* –recall that animate DO in Spanish bears DOM (*a*). However, this incompatibility is not restricted to clitic-doubled ditransitive sentences, as noted by Cuervo (2003a:37) and Aranovich (2011:78). Also Zdrojewski (2008:40, fn. 10) shows that speakers do not show a full consensus regarding the implications of this restriction: ‘La gran mayoría de los hablantes consultados señalan como preferible las instancias en las que cae la *a* [...] Sin

of DCD is supported by evidence in corpus studies (Aranovich 2011, Nishida 2010): In his quantitative corpus-based study, Aranovich (2011:147) shows that doubling is optional, since it occurs ‘in only 19.05% of the tokens (N = 192) vs 80.95% (N = 816) of the tokens without doubling’ and no independent variable triggers it on a systematic basis (Aranovich 2011:179); Nishida (2010) obtains similar results: 29% of tokens with doubling and 71% of tokens without.

Therefore, Spanish and Catalan DOC parallel Greek genitive DOC, which according to Anagnostopoulou (2005:110) show optional DCD.²⁰ Therefore, cross-linguistic and intra-linguistic variation regarding the clitic is not analyzed in terms of presence vs absence of structure, but rather in terms of silence variation (Sigurðsson 2004, Kayne 2005), since semantic effects remain irrespective of the pronunciation of the functional projection Appl.²¹

embargo, los juicios no son uniformes puesto que algunos hablantes prefieren la opción con *a* [...]’ (‘The great majority of speakers we consulted indicated that they preferred the instances where *a* falls [...] However, judgements are not uniform since some speakers preferred the option with *a*’). Crucially, Zdrojewski quotes some historical and prescriptive references to the restriction without clitic. Thus, I conclude that (i) it is a restriction with partial effects and (iii) it does not depend on the clitic, thus it does not affect my analysis. Although it is not a central matter of this paper, this restriction would possibly relate to the so-called *distinctivness requirements* by Richards (2006) and it could be accounted for as Zdrojewski (2008) proposes: the *a* on DO is erased at PF.

¹⁹ It has been widely discussed in the literature whether Spanish *a*-Goals are PPs or DPs. Although pursuing this matter is beyond the scope of my paper, recall that according to Demonte’s (1995) and Cuervo’s (2003a, 2003b) proposals for Spanish and Fournier’s (2010) proposal for French, IO is a dative-marked DP. However, it is interesting to note that Anagnostopoulou (2005:114-115, and 123, fn. 38) claims that in DOC ‘*a*-PPs are allowed to form chains with pronominal clitics in Spanish’ and that ‘the unavailability of doubling with all other PPs could derive from independent factors’.

²⁰ Moreover, in Demonte/Cuervo’s approach, DCD was a *sine qua non* condition for DOC, so unlike English (*He gave me the book*) no DOC could be identified in Spanish with 1st/2nd person datives, since with personal pronouns (*a mí, a tí, a nosotros, a vosotros* ‘to me, to you, to us, to you’) DCD is compulsory and the structure requires a completely different analysis. Thus the clitic could never be argued to stand for the Appl head. Fortunately, in my approach, once the Appl head can also be phonologically null, we can identify constructions like (i) as DOC (with a null Appl and the 1st/2nd person clitic placed somewhere else):

- (i) *Él me/te dio el libro a mí / a tí.*
 He_{CL_{DAT}} gave the book PREP me / PREP you
 ‘He gave me/you the book.’

Juan Romero (p.c.) points out that in a few contexts where Personal Case Constraint applies no DCD is allowed:

- (ii) *Ellos (*te) me enviaron a ti.*
 They (*CL_{DAT}) me sent PREP you
 ‘They sent me to you’

However, this restricted set of contexts does not constitute a counter-argument to my proposal, nor does it say anything in favour of Demonte/Cuervo’s account, which needs the clitic to always be optional with a verb like *enviar* ‘to send’.

²¹ It is generally assumed that French lacks DCD in DitrC and that when there is a dative clitic the IO is right-dislocated; however, some voices disagree and claim that French could perhaps be like Catalan and Spanish (Lamiroy, p.c.). It would be of interest to carry out a corpus-based study paying attention to intonation issues in order to determine whether they are instances of right-dislocation or not.

4. Consequences

4.1. Explaining bidirectional c-command

The different possibilities of c-command relations in DOC follow if we consider that binding facts do not reflect a single universal hierarchical base-ordering of objects. In English binding reflects the base positions of objects (IO>DO), whereas in Romance it usually corresponds to the order objects show in their derived position (DO>IO), as Fournier (2010) argues for French. Crucially, the abovementioned cases of bidirectional c-command in French (see (3)) and in all Romance languages would be easily explained by admitting that binding effects may also occur in the base positions (IO>DO) and, as a consequence, by admitting that in Romance DOC there is a stage in the derivation corresponding to that option – or, in Harley’s (2002:62) words, ‘the binding evidence leads [...] to conclude that at some level of representation, the Goal argument may c-command the Theme argument in these languages’. Besides Harley (2002), also Doggett (2004) and Fournier (2010) defend the option of two different stages of c-command in DitrC in several languages. Now, if we consider again some of the sentences from section 2, we see how grammaticality judgments (30) fit perfectly into my account, that is to say, examples where binding takes place in the base positions (IO>DO) (30a) are more deviant (but not ungrammatical) than examples where binding takes place in the derived positions (DO>IO) (30b), and the clitic makes no difference.²²

- (30) a. ^{ok/?} *La profesora (le) entregó su_i dibujo a cada niño_i.*
 The teacher (CL_{DAT}) gave his/her drawing PREP each child
 ‘The teacher gave his/her drawing to each child.’
- b. ^{ok} *La profesora (le) entregó cada dibujo_i a su_i autor.*
 The teacher (CL_{DAT}) gave each drawing PREP its author
 ‘The teacher gave each drawing to its author.’

4.2. The non-existence of Romance PC ditransitives²³

Here I will show that my approach, based on the non-existence of Romance PC as equivalent to English PC, is much more economical than the alternative view consisting of positing the ambiguity of Romance DitrC. As seen in section 2, according to Demonte (1995), Cuervo (2003a,b) and others, apart from the DOC structure, another ditransitive pattern, PC, is needed to give an account of Spanish ditransitives.

On the one hand, they claim that a PC structure is required to cover all those cases where binding facts and related phenomena seem to behave in a different way when comparing doubled (alleged DOC) and non-doubled structures (alleged PC). Nevertheless, as I pointed

²² In the case of sentences with anaphoric phenomena, grammaticality judgments depend not only on the condition on the positions where binding takes place, but also on a condition on the form of the reflexive, as already noted in section 2.1 (for a DO anaphor to be grammatical it must be *la estima de sí misma* and for an IO anaphor to be grammatical it must be *a sí misma*).

²³ Albeit within a different theoretical approach, Aranovich (2011:41-43) finds some empirical problems (related to the oblique/non-oblique status of *a*-Goals in DitrC) for those who compare Spanish non-doubled DitrC to the English PC. He also mentions two typological differences (related to the mechanisms of overt grammatical coding and the visible consequences of dative shift in English vs Spanish) which should discourage any comparison of Spanish DitrC with DCD and English DOC (Aranovich 2011:89).

out throughout sections 2.1, 2.2, 2.3 and 2.4, the purported differences between ditransitives with and without clitic are neither as systematic nor as clear as they are in the English dative alternation, so they cannot be used to justify the postulation of two completely different Romance ditransitive structures. Moreover, the absence of DCD in DOC can be accounted for by postulating a LowAppl Head which can remain phonologically null.

On the other hand, according to the aforementioned authors, there are some Spanish ditransitives wherein the dative DP cannot be seen as *affected* and, as a consequence, it cannot be clitic-doubled and thus the construction cannot fit into the DOC pattern (see section 2.5). That is another reason why PC was considered necessary. However, as I have argued, these restrictions on DCD are not as sharp as claimed, and in any case the correlation between the lack of clitic and PC does not hold – in other words, not having a clitic does not necessarily mean being a PC.

As a consequence, proposing a Romance PC structure for ditransitives parallel to the English *to*-construction turns out to be an *ad-hoc* solution, usually chosen as a result of the tendency in linguistics to continuously mirror phenomena seen in English. In addition, proposing the existence of a Romance PC would imply the idea that Romance ditransitives are ambiguous, meaning that in these languages the same sentence could be an instantiation of two different structures, despite the fact that no relevant differences between the two structures have been proved to show up on a regular and systematic basis.²⁴ Alternatively to this non-economical proposal, I argue that all constructions expressing a transfer of possession (successful or not, with a completely affected Goal or not) in Spanish, Catalan and French (and probably Italian) are DOC, whereas when a meaning other than this is expressed, e. g. transfer of place, we have a construction which cannot be compared to English *to*-dative and where the Goal is introduced by the locative marker *a/à*.

In this respect, I agree with Fournier's (2010:101, fn. 67) argumentation: 'nous ne suivons pas l'hypothèse que \hat{a}_{LOC} est une P et la traduction de *to* en anglais. Par exemple en français moderne, $\hat{a}_{\text{LOC}}+\text{DP}$ ne peut jamais signifier "vers qqn/qqc", à la différence de *to* en anglais' ('we do not follow the hypothesis that \hat{a}_{LOC} is a P and the translation of English *to*. For example, in Modern French, $\hat{a}_{\text{LOC}}+\text{DP}$ can never mean "towards sth/sb", unlike English *to*'). It is worth noting that, according to Rooryck (1996) and Svenonius (2010), directionality can be encoded in two ways: (i) semantically, when it can be considered part of the inherent meaning of a lexical item (e.g. Spanish *hacia* 'towards', French and Catalan *vers* 'towards') or (ii) grammatically, when a lexical item acquires the meaning in the course of a syntactic derivation (conflating with a functional head with a directional value). In languages where the same preposition can be both directional or not (like English *under*, *in* and *behind* or Dutch *onder*, *in* and *achter*), directionality is a derived property, whereas in languages wherein there is no such optionality it is considered a property inherent to certain prepositions, like Modern French *vers* 'towards'. Interestingly, Troberg (2008:213-215) claims that in Middle French \hat{a} could have both directional and non-directional meanings, so that directionality was a derived property whose loss (in Modern French) was the result of the disappearance of the relevant functional head. This is why in Middle French \hat{a} could introduce complements of non-directional verbs like *aider* 'to help' whereas in Modern French \hat{a} -complements can only appear with directional verbs (*aller* 'to go', *donner* 'to give'). As for Spanish and Catalan, the relevant functional projection of directionality is still present, but *a* does not have a

²⁴ Note that this view based on ambiguity is assumed by Tremblay (1991) for French, as well as by Anagnostopoulou (2005) for French \hat{a} -Goals and for Greek *se*-Goals. In section 4.3 I show that this would be a truly non-economical solution for Spanish and Catalan. And also for French, as Fournier (2010) argues.

directional meaning *per se*, but rather a locative one, unlike English *to* (see Fábregas 2007 for an account of Spanish preposition decomposition).

Returning to my hypothesis on the absence of English-like PC in Romance, it is important to note that Bowers' (2010:168-171) account for English also supports my analysis. As mentioned above, according to him both DOC and PC bear an Appl Head, which can select *to* (or *for*, depending on the verb) or not. He argues that the *to*-Appl must be distinguished from other English expressions of goal or location with inanimate objects marked with *to*. The latter are not Appl-phrases but rather a different category that he labels Goal and that is merged in a different position. Among the several pieces of evidence he provides, he mentions the fact that those two categories, labelled Appl and Goal, can co-occur:

- (31) a. *I shipped Mary the package to her apartment in NY*
 b. *I shipped the package to Mary to her apartment in NY*

Additionally, Bowers & Georgala 2007:12-14) show that the same happens in Greek, where arguments introduced by *se* can instantiate an Appl or a Goal, in Bowers' terms. Although there is an important difference between English and Romance languages, Bowers' approach supports my hypothesis: as for the difference, as argued in the next subsection, the *affectedness/possession* restriction is much stricter in English, which is why Bowers claims that inanimate, location-denoting Goals will never surface in a DOC, whereas in Spanish and Catalan the constraint is more lax and more types of Goals are accepted in DOC.

Leaving this difference aside, the crucial point is that Bowers argues that the standardly assumed impossible form for a Goal in the English DOC, *to*-DP, turns out to be a possible realization for a Goal in DOC; along the same lines, I consider that the standardly assumed impossible form for a Goal in the Spanish DOC, a non-doubled *a*-DP, turns out to be a possible realization for a Goal in DOC. That accounts for the co-occurrence with other non-DOC Goals in (31b) for English and (32b) for Spanish. Crucially, (32b) is a counterexample for approaches like Cuervo's. In fact, according to Cuervo (2003a:33), the *a*-DP in a doubled ditransitive sentence (alleged DOC) is a DP (32a) whereas in a non-doubled sentence (alleged PC) it is a PP and thus is not compatible with another PP of the same type (32b):

- (32) a. *Pablo le mandó un diccionario a Gabi a Barcelona.*
 Pablo CL_{DAT} sent a dictionary PREP Gabi PREP Barcelona
 'Pablo sent Gabi a dictionary to Barcelona.'
 b. ^{??/*} *Pablo mandó un diccionario a Gabi a Barcelona.*
 Pablo sent a dictionary PREP Gabi PREP Barcelona
 'Pablo sent a dictionary to Gabi in Barcelona.'

(Cuervo 2003a: 33)

However, both (31b) in English and (32b) in (European) Spanish are fine, at least for some speakers, yet Cuervo's approach cannot account for this. On the contrary, my proposal does explain these facts: having a non-doubled *a*-DP does not mean at all having a PP and a construction parallel to the English PC in the traditional sense, instead, Romance DOC includes both doubled and non-doubled *a*-DPs. That is why both (32a) and (32b) are perfectly grammatical and semantically acceptable. As for English example (31b), which in the standard approach to the dative alternation should be ungrammatical, it is worth noting that in Bower's (2010) account its grammaticality is not unexpected – though other authors do not consider this construction grammatical.

4.3. The notion of affectedness / possession in DOC

Several semantic approaches (such as Green 1974, Oehrle 1976, Pinker 1989, Jackendoff 1990) agree that, in English, DOC denotes an event where a certain entity is transferred and therefore the IO is *affected* by the verbal action, whereas this is not necessarily the case in PC. However, when it comes to the search for a universal definition of DOC, it seems that this semantic constraint could have several degrees of implementation (inter- and intralinguistically). Indeed, in Romance languages, DOC is possible even when the recipient is a non-affected inanimate object or a dead animate entity, as in the Spanish examples in (33) (against Demonte/Cuervo's predictions):

- (33) a. *Le doné un libro a la biblioteca.*
 CL_{DAT} (I) gave/donated a book PREP the library
 'I gave/donated the library a book.'
- b. *El presidente les ofreció las oraciones elegidas a los soldados muertos.*
 The president CL_{DAT} offered the prayers selected PREP the soldiers dead
 'The president offered the soldiers [who had] died the prayers selected.'²⁵

Interestingly, support for this claim comes from Cuervo's work itself. After stating that the relevant restriction for a Goal to be in the Spanish DOC is 'the possibility of "receiving" and/or possessing the object', Cuervo (2003a:78-79) notes that this restriction is not exactly the same across languages: 'Although the restriction for datives in DOC [in Spanish] is better expressed as a restriction on recipients or possessors, in some languages the restriction might result in having the same effect as a restriction on animacy (e.g. in English)'. Moreover, Cuervo admits that 'the restrictions *per se* have more of a "semantic anomaly" flavor than that of ungrammaticality', something which fits perfectly into my proposal: it is not a matter of grammaticality, but rather a pragmatic/semantic issue which clearly admits some gradience.²⁶

In this regard, I propose that in languages like English the *possession/affectedness restriction* is highly strict and covers not only the possibility of receiving/possessing the object but also the condition of animate, whereas in some Romance languages such as (European) Spanish and Catalan the constraint not only has a narrower scope (up to this point I am in agreement with Cuervo) but also applies more laxly, meaning that it only requires

²⁵ It is worth noting that English also admits DOC in these cases:

- (i) a. *Politicians give dead soldiers last honours.*
 b. *So in BSG they give dead soldiers 21 gun salutes.*

(Google)

²⁶ Importantly, Bresnan (2007) and Bresnan & Nikitina (2008) note that even in English the semantic distinction between DOC and PC is not always as clear as one would expect. They take some examples often used to justify the existence of two different meanings and show that there are several counterexamples in current use (corpus, Google), e.g. verbs of continuous imparting of force such as *push* occur not only in PC but also in DOC, and verbs of prevention of possession such as *deny* occur not only in DOC but also in PC. The grammaticality of these occurrences shows the gradience of the dative alternation, since different values of the recipient (pronominality vs NP-status, *givenness* vs non-*givenness*, definiteness vs indefiniteness, etc) favor one realization or the other. As for Spanish, Aranovich (2011:150-152) finds four factor groups to be statistically significant predictors of DCD: region (America vs Europe), medium (oral vs written), animacy of the recipient and *givenness* of the recipient; to sum up, DCD is more likely in the spoken language, in the American varieties, and if the recipient is [+human] and [+activated].

some sort of affectedness (some possibility of receiving/possessing) of the dative DP²⁷, and it also includes the possibility of affectedness by metaphor or synecdoche. This approach could explain why sentences in (33) are actually not only grammatical but also completely acceptable from a semantic point of view in European Spanish – recall that Demonte (1995:12) judged (33a) as dubious and Cuervo (2003b:122) judged (33b) as ungrammatical. And the same holds for other sentences, like those in (34), which according to Demonte and even Cuervo should not admit DCD because the dative DP is neither affected nor able to receive/possess the theme, although they actually admit it:

- (34) a. *un excepcional venezolano que le entregó su vida a las artes*
 an exceptional Venezuelan who CL_{DAT} gave his life PREP the arts
 ‘an exceptional Venezuelan who gave the arts his life’
 b. *Mimí González le entregó su vida a la danza*
 Mimí González CL_{DAT} gave her life PREP the dance
 ‘Mimí González gave dance her life’

(Aranovich 2011:85)

Sentences in (33) and (34) are cases of DOC and prove that the *affectedness/possession* restriction is somehow less strict in Spanish than it is in English: in Spanish it is not necessary for a Dative DP in a DOC to be interpreted as becoming the possessor of the theme, and sometimes even the whole event cannot be described as an instance of paradigmatic transfer. In this respect, I propose that Spanish and Catalan DOC encompasses several different ditransitive situations, which could be labeled, following Delbecque & Lamiroy (1996:90-96), as (i) material transfer (*dar* ‘to give’), where the subject makes the DO enter the domain of the IO (the IO is in control of the DO but does not necessarily own it); (ii) verbal and perceptual transfer (*decir* ‘to say’), where the subject makes the DO enter the perceptual domain of the IO; (iii) physical motion (*llevar* ‘to bring’), where the subject makes the DO move so as to bring it into the realm of the IO; and (iv) abstract motion (*ofrecer* ‘to offer’), where the subject makes the DO suitable for entering the realm of the IO.²⁸

When that fairly lax constraint is not fulfilled (even via a metaphor), the object introduced by *a* will be not a dative DP but rather a DP with a locative case marker and then no dative

²⁷ In fact, even Cuervo (2003a:50-51) admits that the requirement for datives in the Spanish Low Applicative construction (DOC) is that they ‘must be able to “receive” the theme *in some sense*’.

²⁸ According to my proposal, no relevant difference among these four lexical semantic verbal types should appear when looking at a corpus. Sure enough, in his corpus study, Aranovich (2011:161-162) concludes that the lexical semantics of the verb is not a predictor of DCD: although this phenomenon ‘is more common with verbal transfer (32.08%) than with abstract motion (17.74%), material transfer (19.37%) and physical motion verbs (15.63%) [...] the distribution is not significant according to the Chi-square test’, in other words, DCD is not significantly more likely when the situation can be considered an instance of material transfer (ia) than when there is an abstract motion (ib):

- (i) a. *Uno de ellos le entregó a Vittorio un sobre abultado.*
 One of them CL_{DAT} gave PREP Vittorio an envelope thick’
 ‘One of them gave Vittorio a thick envelope.’
 b. *para que pueda dedicarle más tiempo a la investigación*
 so that (I) can devote.CL_{DAT} more time PREP the research’
 ‘so that I can spend more time on research’

(Adapted from Aranovich 2011:162)

clitic is allowed (i.e., there is no Low Appl Head).²⁹ As a result, in Spanish and Catalan (and also French) *a* is ambiguous, since it stands for (at least) two values, dative case and locative case. As we will see in the next section, evidence for my claim comes from pronominalization in Catalan, a language which preserves locative clitics.

Finally, I would like to point out that my proposal is in some sense similar to that of Rappaport Hovav & Levin (2008). According to them, there is no true structure alternation between *give*-type verbs but only with *send*-type verbs, because the former are always associated with what they call *caused possession*. Although they focus their argumentation on the verb's lexical type (it is a *lexicalist* approach), I make a similar claim focusing on the whole construction (*constructionist* approach): on the one hand, Romance languages lack two different options for the transfer of possession meaning (against Demonte/Cuervo's view), thus all constructions expressing some kind of possession will be instances of DOC; on the other hand, there does exist a distinct structure without Appl Head limited to a set of constructions in which there is not caused possession but rather caused motion, as argued.

5. Pronominalization facts

We will see how Catalan pronominalization facts support this new view on Romance DOC. To begin with, in the previous sections I defended the notion that Catalan sentences with the structure [DO + *a* + Goal] and without clitic doubling can reflect either a DOC or a construction other than DOC, wherein *a* is no longer a dative marker but rather a locative marker. This double possibility depends on the semantics of the sentence: on the one hand, the laxness of the *affectedness/possession* restriction allows the speaker to conceive a great range of scenarios as instances of DOC, with a LowAppl Head and dative case on the Goal; on the other, in a few cases, the pattern [DO + *a* + Goal] may not properly fulfill the *affectedness* constraint and thus it does not fit into the range of situations covered by the DOC, and *a* stands for a locative marker instead. In the former (and most common) case, where the sentence is interpreted as an instance of DOC, dative clitic forms *li/els* (singular/plural) are triggered in pronominalization constructions – as for non-pronominalized sentences, recall that DCD is optional in Catalan DOC:

- (35) (**Li**) *dono un llibre a la Maria.* → **Li** *dono un llibre.*
 (CL_{DAT}) (I) give a book PREP the Maria → CL_{DAT} (I) give a book
 'I give Maria a book.' → 'I give her a book.'

Due to the laxness of the *affectedness/possession* constraint, speakers identify as DOC even constructions with a non-animated and non-completely (but only partially) affected goal, as in (36). Note that in (36b) the Goal DP, which at first sight might not seem to be an affected goal, admits dative pronominalization, preferably through the plural form *els*; in fact, it fits

²⁹ French also behaves this way. As Fournier (2010:103-104, 109) argues, 'si l'objet est capable de posséder et que le verbe peut encoder l'interprétation de transfert de possession, le français marque nécessairement cet argument à cas datif (\hat{a}_{DAT})' ('if the object is able to possess things and the verb can encode the transfer of possession interpretation, French necessarily marks that argument with dative case (\hat{a}_{DAT})'), whereas otherwise we have 'un objet introduit par \hat{a}_{LOC} ' ('an object introduced by \hat{a}_{LOC} ') and a directional movement (path) is expressed. Therefore, \hat{a} is an ambiguous form and an ambiguity avoidance rule applies, according to which when the object and the verb can accept the IO as an eventual possessor, the transfer of possession interpretation is categorical (with \hat{a}_{DAT} -DP and not \hat{a}_{LOC} -DP).

into the range of DOC because a company definitely has the ability to receive or possess things:³⁰

- (36) a. (*Els*) *concediran una medalla als soldats morts.* → *Els* concediran una medalla.
 (CL_{DAT}) (they) will give a medal PREP the soldiers dead → CL_{DAT} (they) will give a medal
 ‘They will give the dead soldiers a medal.’³¹ → ‘They will give them a medal.’
 b. (*Els*) *has enviat el missatge a l’empresa?* → *Els* has enviat el missatge?
 (CL_{DAT}) (you) have sent the message PREP the company? → CL_{DAT} (you) have sent the message?
 ‘Have you sent the company the message?’ → ‘Have you sent them the message?’

As for the less frequent option, consisting of identifying the sentence as a construction other than DOC, it is prototypically instantiated by sentences with an inanimate, location-denoting Goal, like the one in (36b). Therefore, depending on whether a synecdoche effect applies to *a l’empresa* or not, (36b) will reflect the DOC structure or the non-DOC one. In the latter case, no kind of *affectedness/possession* restriction applies, and the clitic used in pronominalization will be the locative form *hi* (37a), as happens with other location-denoting Goals like in (37b) – note that, as we are no longer dealing with DOC structures, no DCD is admitted:

- (37) a. (**Li/*Els*) *Has enviat el paquet a l’empresa?* → *Hi* has enviat el paquet?
 (CL_{DAT}) (you) have sent the parcel PREP the company? → CL_{LOC}(you) have sent the parcel?
 ‘Have you sent the message to the company?’ → ‘Have you sent the message there?’
 b. (**Li/*Els*) *Envio un paquet a Barcelona.* → *Hi* envio un paquet.
 (CL_{DAT}) (I) send a parcel PREP Barcelona → CL_{LOC} (I) send a parcel
 ‘I’m sending a parcel to Barcelona.’ → ‘I’m sending a parcel there.’

The semantics of these structures now reflects not a transfer of possession but rather a transfer of place: what is expressed is that the message or parcel ends up in a different location, thus *a* is a locative marker and the clitic used is the locative one (*hi*).³²

Interestingly, French, another Romance language which preserves prepositional clitics, also displays this optionality between *lui* and *y* with inanimates, as Herslund (1988) shows. Finally, recall that, as argued in section 4.2, the locative marker *a/à* in Catalan, French and also Spanish should not be compared to the preposition *to* which introduces PC ditransitives in English.

³⁰ In this respect, I agree with Cuervo (2003a:78): ‘there is an interesting correlation between the pairs of objects that can appear in the DOC and the pairs that can appear as the arguments with *tener* “have”’. Indeed, Catalan has (i):

(i) *No et preocupis, l’ empresa ja té el paquet.*
 Not you worry, the company already has the parcel
 ‘Don’t worry, the company already has the parcel.’

³¹ See fn. 25 about data on English *dead Goals*.

³² Rigau (1982) argues that *hi* could stand for an inanimate dative marker. This approach could also fit into my analysis, though I will not pursue this matter here.

6. Romance transitivity alternations

This new proposal on Romance ditransitive constructions can also be connected to a group of transitivity alternations (Pineda 2011). The fact is that in some Romance languages (Spanish, Catalan, Occitan, Italian), as well as in Basque (Pineda forthcoming), there are several verbs, such as those meaning ‘to phone’, ‘to hit’, ‘to write’, ‘to steal’ and ‘to pay’, which can be used as ditransitive verbs (38) and also as verbs with a single complement. In the latter case, when expressing only the participant which would be the Goal in a ditransitive structure, it can be assigned either dative case (thus maintaining the same case it would have as the Goal in the ditransitive structure) or accusative case, as in (39) and (40) respectively:

(38) Ditransitive structure with DO (thing) and IO (person)

La Maria (li) telefona un missatge a la seva mare.
 The Maria (CL_{DAT}) phones a message PREP her mother
 ‘Maria phones a message to her mother.’

(39) Intransitive structure with IO (person)

La Maria telefona a la seva mare. → La Maria li telefona.
 The Maria phones PREP her mother → The Maria CL_{DAT} phones
 ‘Maria phones her mother.’ → ‘Maria phones her’

(40) Monotransitive structure with DO (person)

La Maria telefona la seva mare. → La Maria la telefona.
 The Maria phones her mother → The Maria CL_{ACC} phones
 ‘Maria phones her mother’ → ‘Maria phones her.’

Recall that in ditransitive structures in Catalan (and Spanish) there is an *affectedness* restriction which acts quite laxly so that it covers a wide range of situations. Likewise, I argue that a similar restriction (or a version of the same one) applies to transitive structures and that it is responsible for the alternation in (39) and (40). As the alternation is subject to dialectal variation, the restriction will also display differences across the linguistic domain. Thus, in the more innovative dialects, like Central Catalan, speakers use the accusative form in (40), because the restriction which allows to encode a situation as a transitive event is more permissive, and thus covers situations like ‘to phone/hit/write/steal/pay someone’. By contrast, in the most conservative dialects, like the varieties from the region of Valencia and the Balearic Islands, speakers choose the dative form in (39), because the accusative codification is restricted to the most prototypically transitive scenarios with a completely affected theme, this is to say, the *affectedness* constraint is much stricter.

Probably, variation in [DO + *a* + Goal] structures and variation in dative/accusative alternations can be accounted for as a whole by positing a microparameter somehow related to the notion of affectedness. Although more research should be done in this direction, some facts suggest that this is moving in the right track: the more conservative dialects which chose (39) would have a more restrictive *affectedness* constraint not only in the transitive environment but probably also in the ditransitive one. That is to say, they would identify a major number of [DO + *a* + Goal] structures as non-DOC constructions, whereas in the more innovative dialects which chose (40) the non-DOC instances would be much more limited. As a consequence, in the more conservative dialects *a* as a dative case marker could be thought to be less grammaticalized (but present) than in the more innovative ones, and also in the more

conservative dialects the locative function of *a* in [DO + *a* + Goal] structures would be more usual than in the more innovative ones. On the other hand, in the more innovative varieties, the pervasive presence of instances of prototypical DOC with successful transfer of possession and an affected IO would have caused the laxness of the restriction in the transitive environment and thus entailed the change towards the use of accusative instead of dative in sentences with one single complement.

Finally, there is also cross-linguistic evidence which supports the view defended here. First, it should be noted that there is a difference between the two encoding options in (39) and (40): the participant bearing accusative in (40) is somehow more affected than the participant bearing dative in (39). That is to say, for the speakers of the innovative dialects, the accusative-marked participant (40) is conceived as more affected because it enters the domain of transitive codification, whereas dative assignment for the single complement of a verb is reserved for those participants which cannot be considered affected in any sense and thus do not fulfill the lax *affectedness* constraint. As for the speakers of the conservative dialects, the reverse is true: accusative assignment for the single complement of a verb is reserved for those objects which are considered affected enough (or prototypically affected), this is to say, transitive encoding is less extended.

Indeed, codifying the more affected participant as DO (an accusative-marked DP) in verbs with one single complement is cross-linguistically quite a widespread tendency.³³ Among the many studies that point in this direction, it is worth noting that, when discussing the grammatical relation of Dative and in particular those bivalent constructions with a subject-agent and a dative complement, Palmer (1994:33-36) notes that the latter cannot be considered a standard object-patient because patients and dative-marked objects differ in terms of the degree of affectation, and he exemplifies this with the Hungarian use of dative case to mark a patient-like participant which is less affected by the action. Palmer also notes that dative case is used in several ergative languages like Dyrbal or Chichkchee to demote a patient-object which used to bear absolutive case. After analyzing data from typologically different languages, like Georgian and Tabassaran, Palmer (1994:78-79) concludes that the pattern agent+patient indicates full transitivity, and this transitivity is reduced when the pattern used is agent+dative. By the same token, when explaining the accusative/dative alternation in Icelandic, Jónsson (2010) rejects Svenonius' (2002) account (according to which dative case is assigned when a verb denotes two subevents which do not overlap temporally) because it cannot account for all the cases, and argues that the crucial factor in the alternation is the status of the object: a non-patient (undergoing some sort of motion) receives dative, and a patient (being contacted or created) receives accusative. This characterization also fits well with the observation by Blume (1998), who presents a cross-linguistic study with data from Polynesian and Indo-European languages: she compares several agentive alternating verbs in Tongan, Samoan, Maori, German, Hungarian, Polish and Rumanian, and reaches the conclusion that in all those verbs dative selection is not an idiosyncratic matter but rather something cross-linguistically consistent: the relevant verbs share semantic affinities, in particular showing a low degree of semantic transitivity.

³³ See for example Smith (1987) for German, Barðdal (1993, 2001) for Icelandic and also Dixon (1994) and Kittilä (2007) for a cross-linguistic perspective.

7. Conclusions

I have shown that DitrC in (European) Spanish and Catalan surface as DOC, and the *a*-Goal is a dative-marked DP. In addition, DCD has no structural consequences: Spanish and Catalan *a*-Goals can be optionally clitic-doubled (like Greek genitive DP-Goals) and this variation can be accounted for in terms of what portions of shared structure are pronounced (silence variation). Crucially, in both Catalan and (European) Spanish DCD is much closer to a systematic fact present in some dialects and absent in others, and does not seem to be a matter of real choice made by speakers between two allegedly different structures. In addition, I have argued that the *affectedness/possession* constraint which acts in the realm of [DO + *a* + Goal] constructions is also present in the transitive pattern and it is thus behind dative/accusative alternations in Romance.

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Anna Pineda

Universitat Autònoma de Barcelona (Centre de Lingüística Teòrica), Catalonia

anna.pineda@uab.cat

<http://filcat.uab.cat/clt/membres/doctorands/pineda.html>

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An acoustic-phonetic perspective on the phonological behavior of the rhotic tap

Carmen-Florina Savu

In this paper I argue, drawing on data from an experiment on /ɾ/ in Romanian and data from other languages, in favor of the hypothesis that the rhotic tap ([ɾ]) contains one vocoid preceding, and another one following the constricted interval (cf. Stolarski 2011, among others). Specifically, these vocalic elements are mid-high and relatively central, as the acoustic analysis shows.

I then discuss how this segment's encompassing vocalic elements might make the phonological behavior of the sound clearer. The argument put forth is that this structure is precisely what allows the tap to exhibit sonorant behavior and even pattern with vowels.

1. Introduction

This paper is a study on the rhotic tap, [ɾ], aiming to determine what its structure is and if this structure could shed light on its sonorant and even vowel-like behavior in many Slavic languages.

The main goal is to probe into the internal phonetic structure of this sound, drawing on data from studies of it in various phonetic contexts. The tap is argued to be of the (complex) structure 'vocalic element – constricted interval – vocalic element'. Different phonetic contexts may show only one of these vocalic elements, which I argue is the reason most studies detect this one vocoid and try to explain it in various ways. Another aspect of the tap's structure which is addressed in this paper concerns the quality of the vocoids. Using data from a detailed experiment on this sound in Romanian, as well as data from Polish for [ɾ] flanked only by consonants and pauses, I show the tap's vocoids to be, on average, mid-high and central.

The phonological implications of the tap having vocalic elements are then discussed. I argue that the sound's strong vocalic component may be linked to its ability to function as a syllabic nucleus, and even pattern with vowels, as it does in Slavic languages like Serbo-Croatian and Slovak.

The paper is structured as follows: Section 2 discusses previous studies on [ɾ], which attest the systematic presence of vocalic elements with the tap. The quality of the vocalic elements these studies report and the interpretations they give for the one vocoid appearing in most phonetic contexts are also presented. This section contains the reasons I consider said interpretations to not be satisfactory. Section 3 discusses the general structure of the tap this

paper argues for (vocoid – constriction – vocoid), as emerging from putting together data from all the phonetic contexts. Section 4 is dedicated to the study of [r] in Romanian, which aims to determine the area of the vowel space the vocoids of the tap occupy. Polish data from Stolarski (2011) are also used for the aforementioned purpose. Another aim of the Romanian experiment is to determine if the vocoids of the tap may be discerned in context VrV, where the phonetic context should hide both of them. Section 5 discusses some phonological implications of the tap's structure as presented in the previous sections, focusing on the sound's ability to function as a syllable nucleus and behave like a vowel. Section 6 concludes.

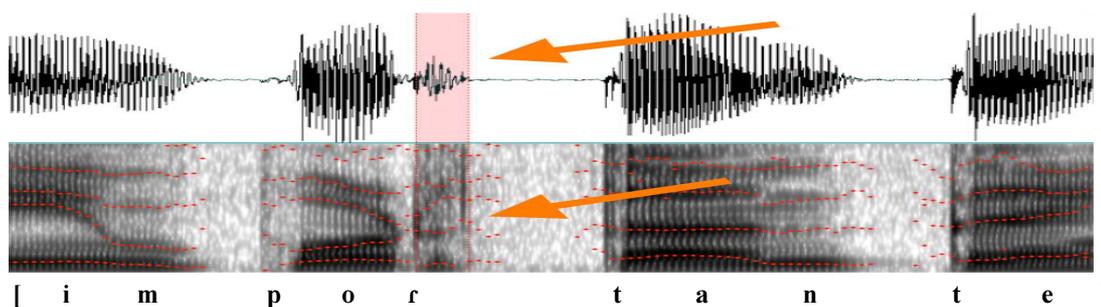
2. What previous studies on the rhotic tap show

2.1 The presence of vocalic elements

When the rhotic tap ([r]) occurs in intervocalic position, spectrograms show it to be a short constricted interval. However, acoustic studies on the tap have revealed that whenever [r] does not border with a nuclear vowel, but with a consonant or a word-boundary instead, there are vowel-like elements that consistently intervene between the constricted interval of the tap and said consonant or word-boundary. Therefore, *one* vocoid following the constriction has been reported for contexts Vr# and VrC(V) (see Spectrograms 1 and 8), while contexts #rV and (V)CrV show a vocalic element preceding the constricted interval (see Spectrograms 2, 6 and 7). The picture emerging from these studies shows that the vocoid appears on the side on which the tap borders with anything other than a vowel.

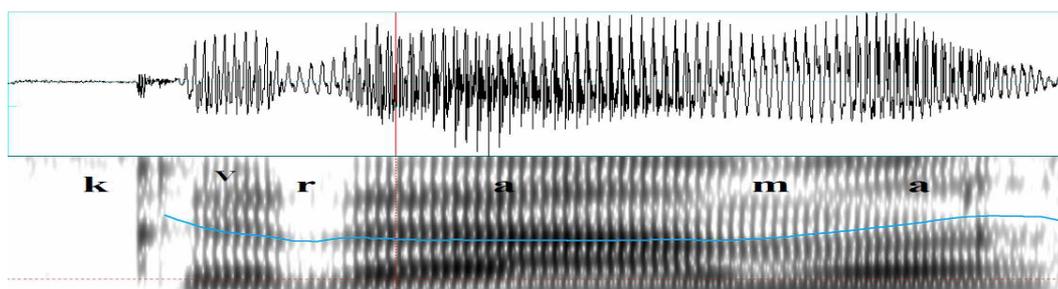
The phenomenon described above is well attested cross-linguistically (see Baltazani 2009; Baltazani & Nicolaidis 2011 for Greek, Vago & Gósy 2007 for Hungarian, Ramírez 2006 among others for Spanish, Recasens & Espinosa 2007 for Catalan, Avram 1993 for Romanian).

The Spanish word *importante* 'important' (context rC):



Spectrogram 1 (from Schmeiser 2009:196)

The Greek word *krama* ‘alloy’ (context Cr):



Spectrogram 2 (from Baltazani 2009)

2.2 The interpretation of the vocalic elements and data from Slavic languages

The interpretation of the vocalic elements mentioned above is still discussed in the literature. Ramírez (2006) sees these vowel-like parts as epenthetic, which would imply that they are not expected to appear. However, I consider that their systematic cross-linguistic attestation diminishes the chance that we are dealing with epenthesis, as does Schmeiser's (2009) observation that an epenthetic vowel is part of the syllabic make-up of the word (it would, for example, add a syllable to the word), while these vocoids are not¹.

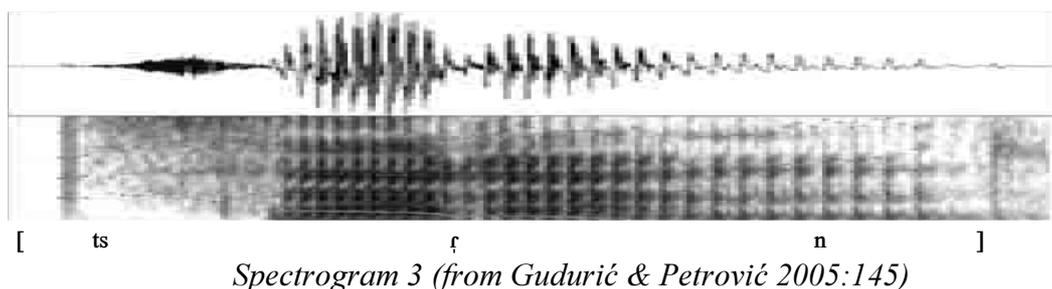
Avram (1993) and Baltazani (2009) treat the vocoids as part of another realization of the rhotic segment. While the situation may be viewed as such, it is interesting that the vocoid appears either to the left or to the right of the constriction and, as I show below, both to the left and to the right when there are no vowels around the tap. This would mean that there are four different realizations of [r]. However, I counter this claim below when I show that, when putting together what the tap looks like in all these contexts, [r] has only one realization, with different parts of it being emphasized in different phonetic contexts.

Yet another treatment of the vocalic elements associated with the tap is that of Bradley & Schmeiser (2003). They offer an articulatory explanation for the phenomenon in which the vocoids appear as a consequence of there being less overlap between the consonantal gestures. If the tongue gesture produced in order to articulate the tap and the gesture of the preceding (or following) consonant do not overlap tightly, a vowel-like element emerges. This would be what Schmeiser (2009) calls an ‘intrusive’ vowel. This explanation might work for Cr and rC clusters, but according to it we would not expect vocoids in #rV and Vr#, since there is no other consonantal gesture for the gesture of the tap to overlap with.

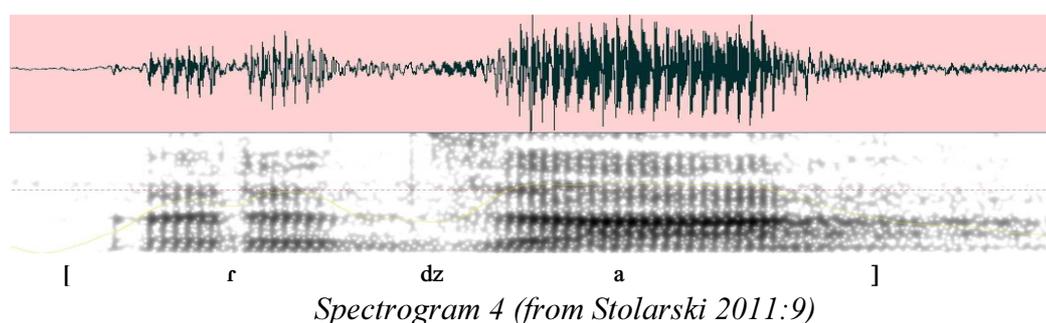
The authors mentioned above look at languages which offer only contexts where [r] is always flanked by at least one nuclear vowel (#rV, rV#, VrC(V), (V)CrV, VrV). Slavic languages which allow contexts where [r] does not border with a nuclear vowel on either side (CrC, #rC, Cr#) show that in such cases *two* vowel-like elements flank the constricted interval (see Spectrograms 3-5). This structure (a constricted interval with one vocalic element on each side) appears on spectrograms in the case of syllabic /r/ (see Gudurić & Petrović 2005 for Serbian and Pavlík 2008 for Slovak) and non-syllabic /r/ alike (see Stolarski 2011 for Polish).

¹ I take Schmeiser's argument to be valid, since in most contexts the vocoids are indeed not part of the syllabic make-up of the word. Schmeiser does not address contexts in which the tap is flanked only by consonants and pauses.

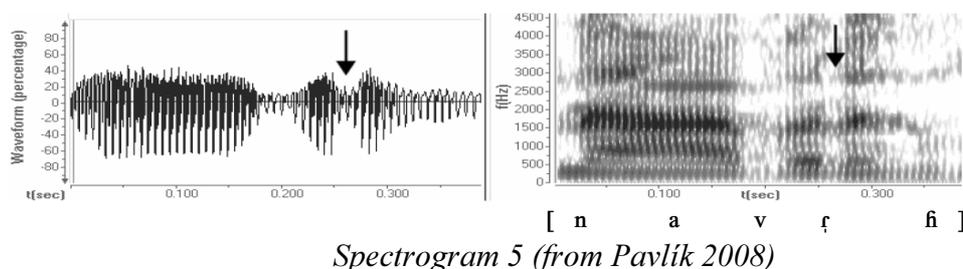
The Serbo-Croatian word *crn* ‘black’ – syllabic /r/:



The Polish word *rdza* ‘rust’ – non-syllabic /r/:



The Slovak word *navrh* ‘proposal’ – syllabic /r/:



2.3 The quality of the vocalic elements

The quality of the vocalic elements has been reported to be, on average, similar to that of [ə] and [ɨ] (Avram 1993; Vago & Gósy 2007; Stolarski 2011), which places them in the mid-high, central area of the vowel space.

Other authors (Quilis 1993 cited in Schmeiser 2009; Baltazani 2009) compare the quality of the vocoids rather to that of the nuclear vowels flanking [r]. Though somewhat centralized, the vocalic element is strongly influenced by the full vowel in its vicinity.

3. The interpretation of the vocalic elements – the complete picture

When putting the different contexts outlined above in perspective, the emergent picture is that of a rhotic segment with the structure ‘vocalic element – constricted interval – vocalic

element', as maintained by Polish authors (Jassem 1973 among others, cited in Stolarski 2011). This would mean that the vocoids observed across languages are *part of* the tap, rather than epenthetic or simply the result of a different relative timing of consonantal articulatory gestures.

The reason why most contexts only reveal part of this picture is that the vocoid only appears saliently when (and where) [r] does not border with a full vowel. In contexts #rV and (V)CrV only the vocoid on the left is salient, since there is no nuclear vowel on that side of the constriction. The one on the right would be indistinguishable from the full vowel. The vocalic element on the right would be salient (i.e. clearly delimited) in contexts Vr# and VrC(V) because in this case the full vowel is on the left.

The contexts that allow for both vocalic elements to be salient on the spectrogram are those contexts where there are no full vowels in the vicinity of the tap for the vocoids to 'blend into'. These are the rarer contexts CrC, Cr#, #rC, which are to be found in some Slavic languages.

The full structure of the tap would be most difficult to see in context VrV. In this case, the only salient part of the tap is the constriction, since the full vowels on both sides of the constricted interval do not render salient the vocoids of the tap.

4. Romanian /r/: experiment purpose, setup and results

The Romanian language has one rhotic phoneme, which has been subject to acoustic analysis previously (see Avram 1993). The analysis has revealed that this phoneme is in most cases realized as a tap, with the (expected) conspicuous vocalic element appearing where /r/ does not border with a nuclear vowel.

4.1 Purposes of the current analysis

The first aim of the acoustic analysis outlined below is to determine the range within which the quality of the vocalic elements may vary. The analysis draws on data from the current experiment on /r/ in Romanian for contexts (V)CrV, VrC(V) and #rV. In order to get a clearer picture, the quality of the vocoids in these contexts available in Romanian will be compared to that of the vocalic elements in contexts CrC, #rC and Cr#, the Polish data in Stolarski (2011).

The second purpose of the acoustic analysis is to attempt to see if the structure 'vocalic element – constriction – vocalic element' may be detected in context VrV. As argued above, this context makes the internal structure of [r] most difficult to discern on a spectrogram.

4.2 Experiment setup

Recordings were made of real Romanian words in isolation with /r/ in the phonetic environments #rV, (V₁)CrV₁ and V₁rC(V₁), where V is one of the seven monophthongal vowels of Romanian (/a, e, i, o, u, ə, ɨ/) and C is a stop (/p, t, k, b, d, g/). The words were chosen such that the clusters containing /r/ are flanked by the same vowel. The idea behind this is that having two different vowels in the environment of a tap could keep the quality of the vocalic element different from that of both vowels. Therefore, with two vowels with different qualities influencing the tap's vocoid, we would not be able to see the most extreme

positions said vocoid can reach in the vowel space. For this reason, a word containing /r/ in an environment like V₁rC# was preferred to V₁rCV₂ where no word was found for V₁rCV₁.

Context	Example	Gloss
#rV	/'radu/	proper name
Cr	/'brə'tsarə/	'bracelet'
	/'de'kret/	'decree'
rC	/'a'lerg/	'I run'
	/'porto'kalə/	'orange'

Table 1: Examples of words used in the experiment

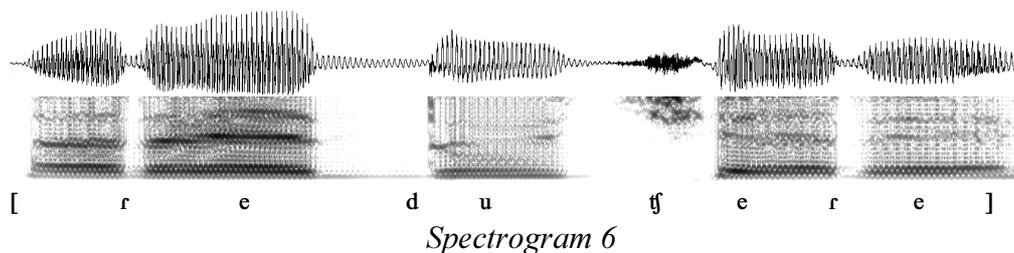
In addition to the words above, recordings of nonsense VrV sequences and tokens of the seven vowels of Romanian were obtained from every participant.

The participants (four females, one male) were asked to read the words and sequences that appeared on Power Point slides into a microphone. The slides changed every four seconds. The recording session was repeated three times for each of the speakers. These recordings were made using the software Audacity 1.2.6 and the acoustic analysis was conducted with Praat, version 5.2.14.

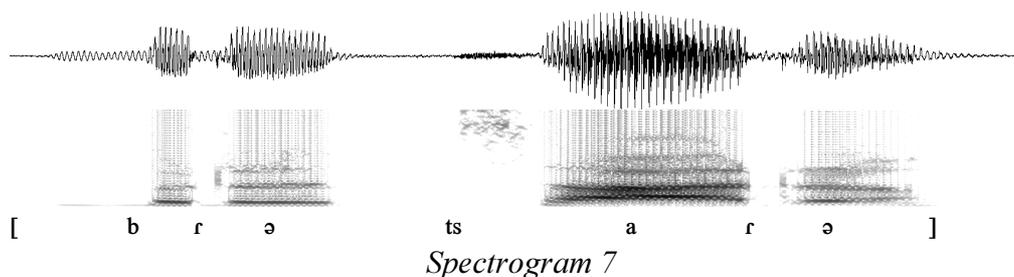
4.3 Results: vocalic elements in taps and their quality

Spectrograms show that the expected clearly delimited vocalic elements do appear when the rhotic segment has one constricted interval. One such vocoid appears on the left of the constriction in contexts #rV and Cr and on the right in context rC:

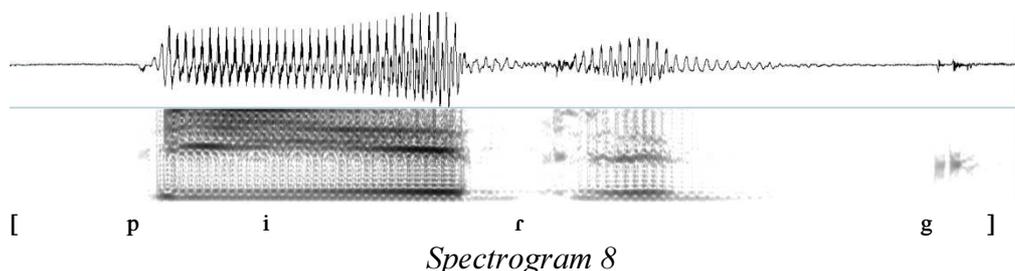
The word *reducere* 'reduction' – context #rV:



The word *brățară* 'bracelet' – context Cr:



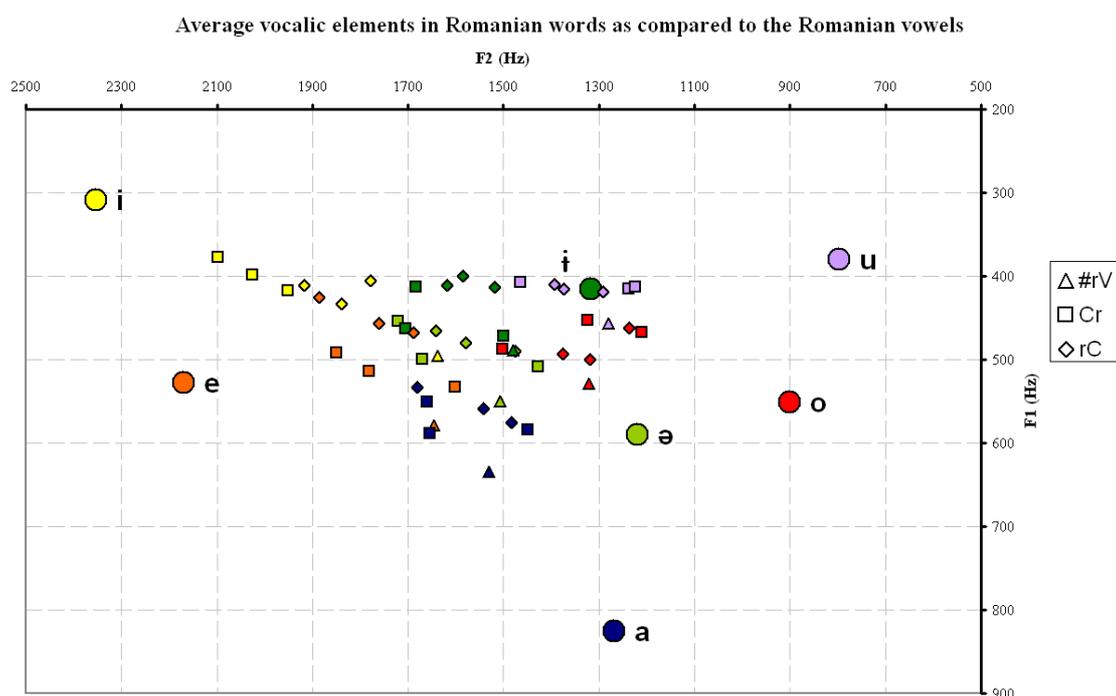
The word *pirg* ‘defense tower’ – context Cr:



4.3.1 *Vocalic elements in Romanian taps as compared to the Romanian monophthongal vowels pronounced by the same speakers:*

As mentioned above, the Romanian language only offers contexts where at least one nuclear vowel must be in the immediate vicinity or /r/, so the taps showed just one salient vocalic element per word. The formant structure of each vocoid was subject to acoustic analysis in order to determine its quality.

Graph 1 below plots the average quality of the vocalic element in [r] flanked by each vowel, for the three contexts analyzed in Romanian, as well as the average formant values for the monophthongal vowels of Romanian uttered by the same speakers. For clusters Cr and rC, the vocoids in words with C at the same place of articulation (i.e. /t/ and /d/, /p/ and /b/, /k/ and /g/) were averaged together, resulting in three squares and three diamonds for each of the seven vowels. The color of the vocalic elements in the tap matches the color of the full vowel in the vicinity of the tap. For example, the blue diamonds represent words containing the sequence /arC(a)/, and the blue squares represent words containing /(a)Cr/.



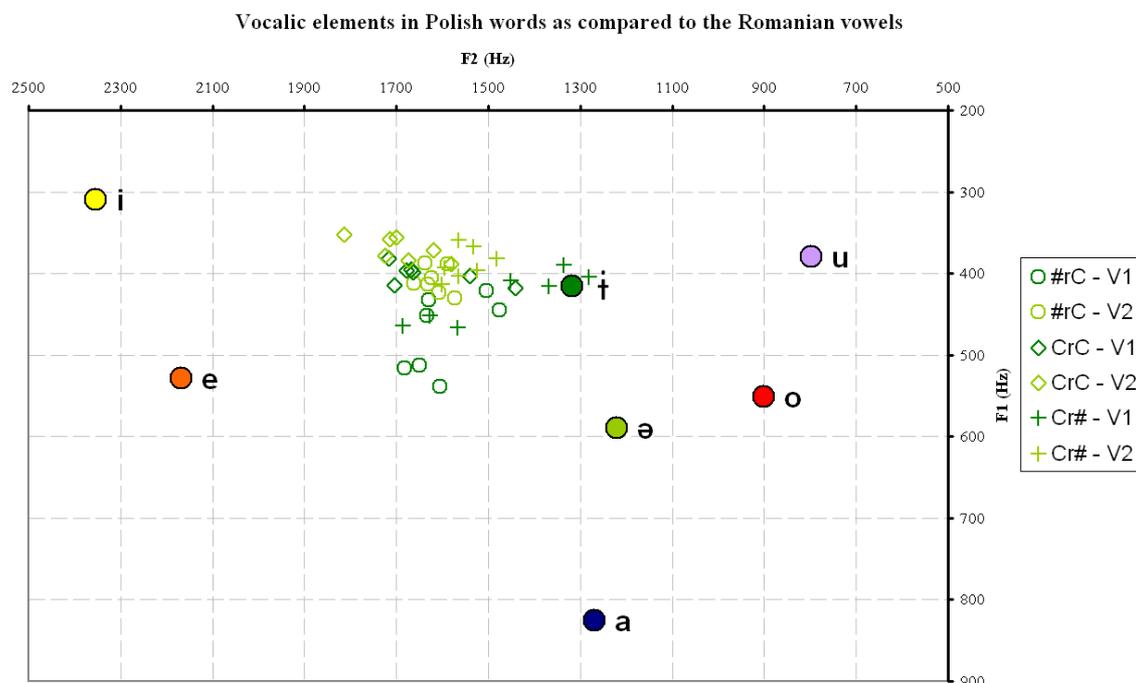
As may be observed from Graph 1, for each nuclear vowel, the vocalic element in its vicinity tends to approach the quality of said nuclear vowel: the vowel-like elements of [r] tend to be front and high when surrounded by [i] (especially in context Cr), front and mid when it borders with [e], etc. The generalization appears to hold for all three contexts.

There appears to be, however, a strong tendency for the vocalic parts to cluster in the mid-high central-front area. There seem to be certain thresholds the quality of the vocoids cannot surpass. Graph 1 clearly shows that the vocalic elements in the vicinity of [a] are mid rather than low and slightly more front, while in the case of [o] and [u] the corresponding vocoids are central, rather than approaching the backness of the full vowel.

It would appear that the only Romanian vowel with which the vocalic elements of [r] overlap is [i]. The vocoids near [u] in particular exhibit a tendency to approach the quality of [i]. Another vowel which the vocoids seem to be close to is [ə], which is lower and more back.

4.3.2 Vocalic elements in Polish words as compared to the Romanian vowels

For the purposes of comparison, as well as taking into account as many contexts as possible in order to get a complete picture, Graph 2 plots the quality of the vocalic elements in contexts #rC, CrC and Cr# in Polish words, again compared to the vowels of Romanian. These three contexts are the ones in which both vocoids of the tap are salient on a spectrogram, which means two vocalic elements for each word could be measured. The formant values for the Polish vocalic elements come from the tables in Stolarski (2011:18-20²).



² The averages given in these tables for the vocalic elements in /r/ in Polish words took into account cases of trilling (which were not included in the study on Romanian), in which case the values for the first and second vocoids were given; however, this is not expected to significantly influence the averages.

Compared to the vocoids in Romanian words, those in Polish words appear to cluster together in an even tighter area, which could be the effect of them not having any full vowels around. Specifically, the vocoids in contexts #rC, CrC and Cr# stay mid-high and central, with no tendency towards the front vowels, like Graph 1 shows for the vocalic elements in Romanian words. These vocoids are also closest to the Romanian [ɨ] and tend to be, on average, higher than the vocalic elements influenced by nuclear vowels shown in Graph 1.

Together, Graphs 1 and 2 take into account contexts #rV, #rC, (V)CrV, VrC(V), CrC and Cr#. If we consider the quality of the vocoids of [r] as evidenced by the two graphs, we can determine the area of the vowel space where the vocalic elements cluster: the mid-high, central (to front) area. It would, therefore, be reasonable to expect that the vocoids of a tap will always have a formant structure which places them in this aforementioned area.

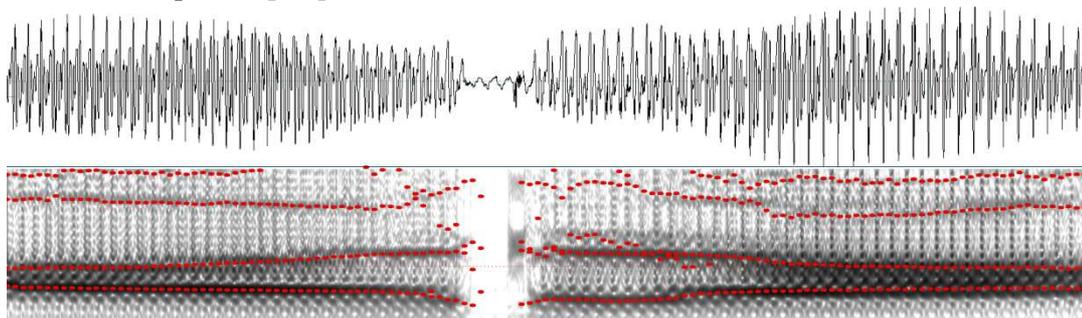
4.4 Results: detecting the structure in context VrV – the nonsense sequences

In order to determine if the structure ‘vocalic element – constricted interval – vocalic element’ may be detected where the tap is in intervocalic position (context VrV) as well, let us look at the way the formants change towards the constriction in the nonsense sequences³. In the VrV context, abrupt changes have been reported to occur before the constricted interval (Baltazani & Nicolaidis 2011).

Since the vocoids appearing in the other contexts cluster in the mid-high, central to front area of the vowel space, the expectation is that in context VrV the formants would change such that towards the constricted interval their configuration would be that of a mid-high central vowel, departing from the full V in question. In other words, immediately before and after the constriction, there would be mid-high central vocalic elements.

Looking at spectrograms of the non-sense sequences, this appears to be indeed the case:

Nonsense sequence [ara]:



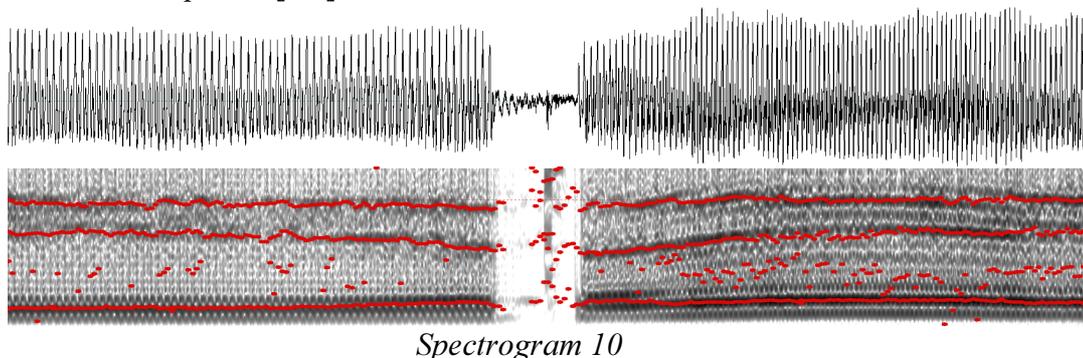
Spectrogram 9

In Spectrogram 9, the tap is flanked by the vowel [a], which has a high F1 and a low F2, as may be seen on the left and right sides of the spectrogram. What may be observed in Spectrogram 9 is that, near the constriction, F1 drops slightly and F2 rises. A lower F1 suggests a vowel higher than [a], while a higher F2 is the mark of a more front vowel.

³ The words /a'ra/ and /'ere/ are words of Romanian, meaning ‘to plough’ (imperf.) and ‘eras’ respectively. In the current experiment [ara] and [ere] were presented to the speakers as nonsense sequences, on par with the others. The participants were not told to stress one or the other of the syllables. When asked later, the participants confirmed not having realized that there were two real words among these sequences. However, even if they had, the expected formant changes would have still taken place in any V₁rV₁ sequence.

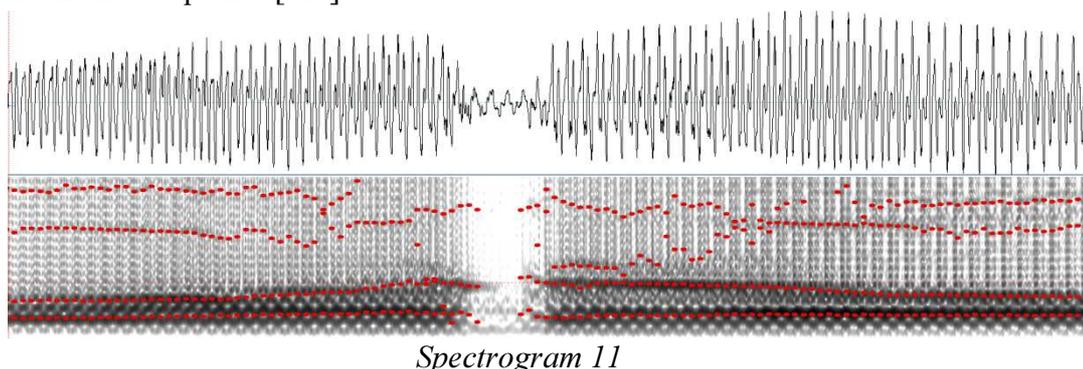
Together, the formant changes suggest that near the constriction there is a vowel part which is more mid-central than [a].

Nonsense sequence [ere]:



The vowel [e] is characterized by a relatively low F1 and a relatively high F2. Near the constriction, Spectrogram 10 shows a rising F1 and a falling F2, which means a vowel that is a little lower and more back than [e], leading to the central area of the vowel-space.

Nonsense sequence [oro]:



[o] has both F1 and F2 relatively low. Spectrogram 11 shows a rise in F2, while F1 does not change, meaning that towards the constriction the part of the vowel is as high as [o], but somewhat more front than said back vowel, reaching the central area.

The systematic formant changes described above suggest that in context VrV the same ‘vocalic element – constricted interval – vocalic element’ structure of the tap may be observed. The vocalic elements are more mid-central than [a], lower and more back than [e] and slightly more front than [o], which indicates the mid-high central area of the vowel space. This matches the area in which Graphs 1 and 2 place the salient vocoids of other contexts.

5. The phonological behavior of such a structure

Phonetically, [ɾ] has been assumed to be a simple constricted interval, the appearance of an obstruent which is a sound produced with a complete or almost complete constriction in the vocal tract. This sound does indeed contain a brief, but complete constriction, which, on a spectrogram, is translated into a brief interruption of the acoustic energy.

Phonologically, however, the tap exhibits sonorant behavior, which is easily explained if its phonetic structure is the complex one I have argued for in this paper, one that includes vocalic parts. This would make the tap more similar to other sonorants like liquids and nasals, which are similar to vowels on a spectrogram.

5.1 Syllabic /r/ – vocalic /r/

/r/ can act as a syllabic nucleus (which is typically the function of vowels) in Slavic languages like Czech, Slovak, Serbo-Croatian, Macedonian and (possibly) Slovenian (Sussex and Cubberley 2006). While none of these languages have syllabic nasals, Czech and Slovak include syllabic /l/ as well. Acoustic studies on /r/ in Serbian and Slovak have revealed that /r/ is often pronounced as [r] (see Gudurić & Petrović 2005 for Serbian, Pavlík 2008 for Slovak). The vocalic elements described in this paper have been observed in these two studies as well.

In Serbo-Croatian and Slovak, aside from being a possible syllabic nucleus, /r/ patterns with the vowels of the language in other interesting aspects as well. In Slovak, /r/ (and /l/) can be the bearers of length distinctions and participate in the same alternations that vowels can participate in (Pouplier & Beňuš 2011). Table 2 below exemplifies vowels and /r/ undergoing lengthening and shortening:

Lengthening through suffixation (acute accent means length ⁴)			
(1a)	vowel	<i>hrad</i> ‘castle’	<i>hrád-ok</i> (dim.)
(1b)	syllabic /r/	<i>vrch</i> ‘hill’	<i>vrš-ok</i> (dim.)
Shortening through suffixation			
(2a)	vowel	<i>zváž-i-t</i> ‘think’	<i>zvaž-ova-t</i>
(2b)	syllabic /r/	<i>vykr̂m-i-t</i> ‘feed’	<i>vykrm-ova-t</i>

Table 2 (examples from Pouplier & Beňuš 2011)

In Serbo-Croatian, /r/ can bear length and pitch distinctions (Sussex & Cubberley 2006:187), producing minimal pairs such as those in Table 3:

⁴ The Slovak words are given here in their orthographic form, since this is how they appear in the original work. Likewise, the Serbian words that follow are in their dictionary form.

(3a)	<i>grəd</i> (short falling)	‘hail’	vowel
(3b)	<i>grâd</i> (long falling)	‘town’	
(4a)	<i>vâljati</i> (short rising)	‘to be good’	vowel
(4b)	<i>vâljati</i> (long rising)	‘to roll’	
(5a)	<i>Třst</i> (short falling)	‘Trieste’	syllabic /r/
(5b)	<i>třst</i> (long falling)	‘cane’	
(6a)	<i>třnuti</i> (long rising)	‘to become numb’	syllabic /r/
(6b)	<i>třnuti</i> (short falling)	‘to extinguish’	
(7a)	<i>grâdu</i> (long falling)	‘city’ – DAT.SG.	vowel
(7b)	<i>grâdu</i> (long rising)	‘city’ – LOC.SG.	
(8a)	<i>sřca</i> (short falling)	‘heart’ – GEN.SG.; NOM., VOC., ACC., PL.	syllabic /r/
(8b)	<i>sřcā</i> (long falling)	‘heart’ – GEN.PL.	
(9a)	<i>břzo</i> (long rising)	‘quick’ – (adjective) NEUT. SG.	syllabic /r/
(9b)	<i>břzo</i> (long falling)	‘quickly’ – (adverb)	

Table 3

(examples from Sussex & Cubberley 2006:187; Filipi & Ionilă 2001:427; Browne 1993:319,321)

As mentioned above, acoustic studies indicate that in Serbo-Croatian and Slovak, /r/ is often realized as a tap. Table 4 shows how the words in Tables 2 and 3 would be pronounced in this case:

<i>vrch</i> (1b)	[ˈvr̩x]	Slovak (length distinction)
<i>vřšok</i> (1b)	[ˈvr̩:řok]	
<i>vykřmit</i> ’ (2b)	[ˈvik̩r̩:mitʰ]	
<i>vykřmovat</i> ’ (2b)	[ˈvik̩r̩movatʰ]	
<i>Třst</i> (5a)	[tř̩st]	Serbo-Croatian (length and pitch (tone) distinction)
<i>třst</i> (5b)	[tř̩:st]	
<i>třnuti</i> (6a)	[tř̩:nuti]	
<i>třnuti</i> (6b)	[tř̩:nuti]	
<i>sřca</i> (8a)	[sř̩:tsa]	
<i>sřcā</i> (8b)	[sř̩:tsa:]	
<i>břzo</i> (9a)	[bř̩:zo]	
<i>břzo</i> (9b)	[bř̩:zo]	

Table 4

As shown in Table 4, [r] bears the phonemic length and pitch distinctions when the realization of the rhotic segment is the tap. It may be that its ability to appear in onset and coda position, as well as in the nucleus, and to exhibit vowel behavior, is linked to vocalic elements being part of this sound’s internal phonetic structure. Since the tap itself contains two vocoids flanking a complete constriction, the lack of other nuclear vowels in the vicinity of the tap may enable it to be treated like a vowel of the language (in Slovak and Serbo-Croatian). The

vocalic elements become ‘perceptually salient’ when there are no full vowels surrounding the tap, since the consonantal environment in contexts like CrC would contrast with the vocoids. In this situation, speakers can control them for linguistic purposes. The vocoids would, therefore, be the bearers of the length and pitch distinctions.

When [ɾ] borders with full vowels, the tap will not be a syllabic nucleus, since its own vocalic elements are not salient, but overshadowed by the nuclear vowels. This concurs with Dłuska’s mention that speakers are usually unaware of the vowel-like elements in the rhotic segment (Dłuska 1983, cited in Stolarski 2011).

The Polish language provides the situation in which a tap would not be a syllabic nucleus even in contexts where it has no full vowels in the vicinity, like CrC. This would make a counterargument to the line of reasoning outlined above and opens up an interesting question for further research: what is the phonetic difference between syllabic taps and inter-consonantal taps that are not syllabic?

Another avenue for further research is brought by context VrV. Here, the tap is flanked on both sides by nuclear vowels, so the only ‘conspicuous’ part of the rhotic segment in this case would be the constriction, the obstruent ‘part’ of the tap. It would be interesting, therefore, to see if in context VrV the tap displays obstruent behavior⁵.

5.2 /ɾ/ or /əɾ/?

An analysis /əɾ/ instead of /ɾ/ has been proposed for Slovenian and Macedonian (Sussex and Cubberley 2006:156-7), despite the lack of /ə/ in the Macedonian vowel inventory and in other contexts in the language. In fact, it appears to be the case that Slavic languages with syllabic /ɾ/ do not distinguish /ə/ or /ɨ/, according to the vowel inventories in Sussex and Cubberley (2006:154). An exception is Slovenian, a language in which the existence of syllabic /ɾ/ is debatable. Bulgarian, which does not have syllabic /ɾ/, has /ə/ in its inventory.

It is worth noticing that Slavic languages with syllabic /ɾ/ do not distinguish precisely the vowels with qualities that would place them in the area of the vowel space where the vocoids of the tap tend to cluster. This would solve the dilemma of /əɾ/ versus /ɾ/ for Macedonian. Since [ɾ] itself partly consists of vocalic elements in the mid-high, central area, the absence of /ə/ or /ɨ/ in other contexts would make speakers unable to recognize a mid or high, central vocoid as separate from [ɾ]. Any vocalic part interfering between the consonant and [ɾ] in a CrC context would pass as part of the tap. Therefore, the syllabic /ɾ/ analysis would make the best choice for Macedonian, while remaining problematic for Slovenian, since this language does have /ə/ in its inventory and other phonetic contexts, rendering speakers able to parse it in a CrC sequence.

⁵ Indeed, an interesting research question is that concerning the featural specifications of the structure ‘vocoid-constriction-vocoid’. This kind of structure appears to be that of a sonorant at the edges and an obstruent in the middle. An anonymous reviewer points out that /ɾ/ does not always behave like a sonorant. While this avenue of research is beyond the scope of this paper, I would like to argue that, in the case of the tap, it would not be surprising to see it behave as an obstruent, since according to its structure it should have that ability. Another issue is how the tap would be characterized with respect to the feature [continuant]. This feature distinguishes between stops and fricatives. Given that part of the tap’s structure looks exactly like that of a very short stop, the sound may have the specification [-continuant]. However, Chomsky & Halle (1968) consider that trills, which are similar to taps but contain several interruptions of acoustic energy, may be [+continuant]. It remains to be seen whether the tap may also be [+continuant], given its similarity to the trill.

6. Conclusion

In this paper I argued in favor of the hypothesis that the internal phonetic structure of the rhotic tap is ‘vocalic element – constricted interval – vocalic element’. According to the results of the acoustic analysis of these vocoids in contexts #rV, Cr and rC in Romanian, as well as Polish data for contexts Cr#, CrC, #rC, the vocalic elements of [r] exhibit the strong tendency to cluster in the mid-high, central to front area of the vowel space. This makes the vocoids similar to [i] and [ə], and, it is precisely these two vowels that are missing from the inventories of Slavic languages with syllabic /r/. I also argued that this structure may be linked to the tap’s ability to behave like a sonorant, and even a vowel. The sound’s vocalic parts could be the ones enabling the tap to bear length and pitch distinctions in languages like Serbo-Croatian and Slovak.

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Carmen-Florina Savu
University of Bucharest
carmenflorinasavu@yahoo.com

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Collective (dis)agreement

On a 3/4 pattern of British English collective NPs

Peter W. Smith

This paper investigates plural agreement that is triggered by collective NPs that are morphologically singular in British English. Plural collective noun agreement freely alternates with singular agreement in this dialect, but there are unexpected restrictions which I provide an explanation for. I also discuss agreement mismatches that are found with collective nouns, and show how they can be accommodated in a minimalist framework. This paper adds to the debate on where agreement happens within the grammar, and I propose that it is both syntactic and post-syntactic following recent work elsewhere.

1. Introduction

It has long been known, at least going back to Corbett (1979) but discussed much elsewhere (see for instance Pollard & Sag 1994, Elbourne 1999, den Dikken 2001, Sauerland & Elbourne 2002, Wechsler & Zlatić 2003, Sauerland 2004a,b) that British English (BrE) differs from (standard) American English (AmE) in that collective NPs (CNPs henceforth) that are morphologically singular trigger both plural and singular agreement on the verb in BrE, whereas only singular agreement is allowed in AmE. By CNPs, I mean those nouns that represent a plurality of members, but a singular collection of them. Thus, both sentences in (1) are acceptable to a speaker of BrE, but only (1a) is typically acceptable to a speaker of AmE:¹

- (1) a. The government is failing the nation.
b. The government are failing the nation.

This alternation is not restricted to *government*, and is in fact quite general across CNPs:²

¹ From this point on I restrict my attention to BrE, unless otherwise noted. I return to dialectal variation briefly in section 4.1. I focus on morphologically singular CNPs, setting aside their plural counterparts.

² As Levin (2001) shows, there is variation in how freely different CNPs trigger plural agreement. For instance, *army* shows a 4:1 preference for singular verb agreement, whilst *crew* shows a 2:1 preference for plural verbal agreement. In this paper I abstract away from this variation, focusing on the underlying ability of CNPs to trigger both types.

- (2) a. The pride is hunting zebra.
b. The pride are hunting zebra.
- (3) a. My team is losing again.
b. My team are losing again.
- (4) a. The public is demanding an investigation into the behaviour of the banks.
b. The public are demanding an investigation into the behaviour of the banks.

The alternation in agreement is not restricted just to verbal agreement either. Both plural and singular anaphors can be licensed by CNPs:

- (5) a. The committee has given itself a budget increase.
b. The committee have given themselves a budget increase.

As noted by Corbett (1979) (see also Elbourne 1999 and den Dikken 2001 for analyses), the alternation does not extend to demonstratives, which are only allowed to be singular:

- (6) a. This government is/are corrupt.
b. *These government is/are corrupt.

I will return to the issue of demonstrative agreement below, but for now it is important to note that singular demonstratives appear even in clearly plural contexts, and so it is not simply the case that the CNP can only refer to the collection reading with demonstratives. (7a) shows this by the use of a floating quantifier, and (7b) shows the singular demonstrative appearing with the CNP, which in turn is the subject of the verb *meet*, a classic indication of semantic plurality as singular things cannot meet:

- (7) a. This government are all corrupt.
b. That committee met for over 12 hours, yet could still not hammer out a deal.

All of these properties have been previously noted in the literature, but less commonly noted is that plural agreement is systematically more restricted than singular agreement even where not attributable to semantics. As noted by Elbourne (1999), plural agreement is not allowed in existential constructions:

- (8) a. There is a committee deciding the budget for next year.
b. *There are a committee deciding the budget for next year.
c. There is a new dominant pride on these grasslands.
d. *There are a new dominant pride on these grasslands.

This is surprising, since English does allow for plural agreement with a plural associate in the existential construction:

- (9) There are three cats in the alleyway.

Another surprising restriction of plural agreement comes from reconstruction effects in raising constructions, where English generally allows a raised indefinite to reconstruct into the lower clause (see Sauerland & Elbourne 2002 on ‘total reconstruction’, also Fox 1999, Bobaljik 2002):

- (10) A pig is likely to run the farm. > likely / likely >

CNPs are also allowed to reconstruct into a lower scope position, however, as Elbourne (1999) demonstrates, this is only possible if the matrix verbal agreement is singular; reconstruction is not allowed if the verb is plural:

- (11) a. A northern team is likely to be in the final. > likely / likely >
 b. A northern team are likely to be in the final. > likely / *likely >

Den Dikken (2001) notes a final restriction on plural agreement with CNPs. He shows that (12a) is ambiguous in a way that (12b) is not. (12a) has both a subject reading of the CNP, given in (13a), as well as a predicate reading (13b). (12b), with plural agreement, lacks the predicate reading:

- (12) a. The best committee is theirs. committee = $\sqrt{\text{subject}} / \sqrt{\text{predicate}}$
 b. The best committee are theirs. committee = $\sqrt{\text{subject}} / * \text{predicate}$

- (13) a. The best committee belongs to them. (subject reading)
 b. The committee that they belong to is the best committee. (predicate reading)

A further curiosity concerning the agreement of CNPs is to do with mismatches of agreement. (7a) above shows that mismatches are allowed as there is a singular demonstrative and a plural verb agreeing with the same CNP. Elbourne (1999) (see also Wechsler & Zlatić 2003) takes this as an indication that CNPs in BrE are simultaneously singular and plural, that is they have both singular and plural number features. I will return to this point below, but the important observation here is that mismatches are restricted. This can be shown with sentences involving verbal agreement and anaphoric agreement. We can see in (14) that sentences involving matching agreements are fine. Mismatches are only acceptable when the anaphor is plural and the verb singular (14c); the other way round is sharply degraded, shown in (14d). Thus, of the 4 logically possible combinations of agreement when there are two targets, only 3 are manifested. I will refer to this as the 3/4 pattern:

- (14) a. The government has offered itself up for criticism (with this economic policy).
 b. The government have offered themselves / each other up for criticism.
 c. The government has offered [?]themselves / each other up for criticism.
 d. *The government have offered itself up for criticism.

This pattern to my knowledge has not been noticed before in the literature (though see Huddleston & Pullum 2002:495 regarding pronouns). Pollard & Sag (1994:71) claim that sentences with mismatches are not allowed. So, for them only (14a,b) would be acceptable. Whilst it is true that there is a slight degradation with *themselves* (but not *each other*) in (14c),

speakers systematically make a very clear distinction between (14c) and (14d) (all 9 native speakers I asked agreed on this point).

To summarize this section, we have seen that CNPs in BrE seem to freely control either singular or plural agreement, however there are certain contexts where plural agreement is restricted. Crucially, these contexts cannot be attributed to semantic incompatibility. For instance, whilst the sentences with plural agreement are traditionally thought to coincide with an aggregate reading of the CNP (see Pollard & Sag 1994, though this is more of a preference than absolute), there is no good reason why a CNP that is understood as an aggregate should be precluded from the above mentioned environments.

The rest of the paper is organized as follows. In section 2 I briefly discuss three previous accounts of the restrictions on plural agreement, showing that they do not adequately capture the facts, whilst building towards my analysis. In section 3 I show the true generalization on where plural agreement is licensed that we should strive to capture, which I term *LF-visibility*. I show that plural agreement is only able to be controlled by the CNP when the target of agreement is c-commanded by the CNP at LF. In section 4 I present my analysis of why plural agreement fails in existential constructions, does not allow for scope reconstruction and does not permit a predicate reading of a CNP. The analysis is based on the idea that there is agreement both syntactically and post-syntactically, in line with - but differing in detail from - recent proposals by Migliori (2011), Arregi & Nevins (2012) and Bhatt & Walkow (to appear). I show that whilst agreement is able to take place both syntactically and post-syntactically, there is an upward directional restriction on agreement within the syntax that is absent post-syntactically. This allows us to derive the generalization given in section 3. In section 5 I show how this analysis also allows us to capture the 3/4 pattern of agreement given in (14) before concluding the paper.

2. Mereology, plurals and hidden definites

In this section I discuss previous accounts of the restrictions on plural agreement of CNPs, by which I refer to the facts of existentials, reconstruction and predicate readings. As mentioned in the introduction, the 3/4 pattern has not been previously noted in the literature so I largely postpone further discussion of it until section 5, other than to point out that it is incompatible with the accounts under discussion.

There are at least two potential ways that one could attempt to explain why plural agreement is restricted, and there are proposals encompassing both. Firstly, it could be argued that the reason why plural agreement fails is not due to anything to do with agreement *per se*, but there is something about plural agreeing CNPs that precludes them from the illicit environments. That is, CNPs that control plural agreement are somehow different from CNPs that control singular agreement, and it is that which prevents them from being in existential constructions, reconstructing for scope and having predicate readings. This style of analysis has been (differently) offered by both den Dikken (2001) and Sauerland (2004a,b). The second type of approach is to assume that there is no difference between CNPs that trigger plural agreement and those that trigger singular agreement, but the reason why plural agreement fails is more a structural problem as the plural feature is somehow unable to enter into agreement in certain configurations. This style of proposal is given by Elbourne (1999). As I will show, any successful analysis must be of type 2; the restrictions on plural agreement have nothing to do with the nature of the CNP itself, but rather the mechanism of agreement is such that the plural feature is rendered inaccessible in exactly the environments that plural

agreement fails. I will however first discuss the type 1 approaches, as the way that they fail forces our hand into adopting a type 2 approach.

2.1. Den Dikken's *plurilingulars* and Sauerland's *hidden definites*

As previously stated, the logic of type 1 approaches goes as follows. Plural agreement is not allowed in some constructions where singular agreement is allowed. If it were the case that we could find some element that is independently prohibited from being in those instances where plural agreement is disallowed, then as long as the reason is plausibly related to CNPs, we can analyze plural agreeing CNPs as being an instance of that element and therefore explain why there is no plural agreement. Plural agreement would not be possible as the necessary element is independently disallowed in that environment. This though has the possible drawback of course of analyzing plural-agreeing CNPs as different from singular agreeing CNPs.

Sauerland (2004a,b) offers an analysis of type 1. He claims that plural agreeing CNPs such as *a committee*, even when they look like indefinite DPs, are in fact *hidden definites*. For Sauerland, the plurality aspect of the CNPs is not featurally encoded within the CNP itself (an assumption shared with den Dikken below), but in fact arises from the addition of a plural operator Γ^{-1} to the CNP (see Link 1991 on the semantic plurality adopted by Sauerland). Γ^{-1} turns the atomic CNP into its plurality of members and in doing so, makes the semantic type of the DP as a whole $\langle e, e \rangle$, a definite expression. This analysis explains why there is no plural agreement in existential constructions, as plural agreement will only be licensed in the presence of Γ^{-1} on the CNP, since there is no plural feature on the CNP itself. However, there is a well known definiteness restriction in existential constructions, and so the CNP with Γ^{-1} is the wrong semantic type, and is prohibited. Thus, plural agreement is not able to be licensed. Sauerland also claims that the reason that there is no scope reconstruction with plural agreement is due to the fact that definite expressions do not reconstruct, a phenomenon he attributes to Fox's (2000) scope economy. Reconstruction is possible for CNPs like *a committee* when there is singular agreement, because lacking Γ^{-1} they are indefinite expressions, and so are able to reconstruct. There is however no discussion of the restriction on predicate readings given in (12), and it is unclear how these could be assimilated into Sauerland's explanation, given that there is clearly no restriction on definite expressions being predicates:

- (15) a. The lion is **the king of the jungle**.
 b. I consider the tiger **the most ferocious animal** around.

Den Dikken (2001) also takes this type of approach, choosing to analyze plural agreeing CNPs (*plurilingulars* as he terms them - elements that look singular but are really plural) as plural pronouns. According to den Dikken, plural CNPs are actually composed of an appositive structure headed by a plural *pro* combining with the CNP. Singular agreeing CNPs are simply the CNP without any *pro*. So, there is no sense that the CNP itself is simultaneously singular and plural, which as I will discuss shortly was Elbourne's (1999) claim, as well as what I will argue for. Rather, for den Dikken the plurality of the CNP comes solely from the plural *pro*. By virtue of heading the DP and being silent, *pro* only makes it seem as though the CNP is plural by controlling plural agreement. Despite the undesirability of appealing to *pro* in English, den Dikken claims that this account offers a number of benefits. Firstly, den Dikken claims that plural pronouns in English are unable to be

predicates. If the predicate readings of (12) are derived from having the CNP in predicate position, then we expect plural agreement not to be possible under den Dikken's analysis as it would require a plural pronoun to be a predicate by virtue of the plural *pro*. Singular agreeing CNPs do not face this problem as there is no *pro* contained within the DP and so can be predicates. Secondly, den Dikken claims that we can explain the ban on plural agreement in existential constructions, as pronouns are not allowed to be the associate of an existential construction, unless on a list reading.³ Den Dikken does not discuss the reconstruction effects.

Both den Dikken's and Sauerland's theories claim to capture two out of the three aforementioned restrictions on plural agreement. However, there are two problems that neither analysis is able to capture. Elbourne (1999) showed that there is a need to treat CNPs as simultaneously singular and plural on the basis of instances where there is mixed agreement, such as in (7a) above, where there is a singular demonstrative and plural verbal agreement. Now, it could be argued that demonstratives simply are unable to be plural due to an arbitrary restriction on semantic agreement, such that demonstratives independently are unable to show agreement with the semantic features of the CNP.⁴ Corbett (1983) shows that such arbitrary restrictions do exist in the Slavic languages. More troubling for Sauerland and den Dikken is the fact that agreement mismatches are allowed in the same sentence, crucially involving elements which *can* show both singular and plural agreement. Such a case is manifested in (14c), repeated below, where there is singular verbal agreement and a plural anaphor (recall from section 1 that both of these elements can show either singular or plural agreement):

(14) c. The government has offered [?]themselves / each other up for criticism.

This is very problematic for any approach of type 1, because mismatches are unpredicted; plural agreeing CNPs should only license plural agreement. The fact that both agreements are able to be simultaneously controlled by the same CNP shows us that it is not the case that there are plural agreeing CNPs and singular agreeing CNPs, and these are qualitatively different from each other, but rather it must be the case that CNPs have the ability to control both agreements. This fact strongly pushes us to reject any type 1 approach, as they crucially rely on plural agreement being controlled by a CNP that is different from a CNP that controls singular agreement.

Further trouble for any type 1 approach comes from the fact that it is possible to have a CNP in an existential construction which licenses a plural anaphor. Such a situation is entirely

³ Den Dikken claims the list readings are irrelevant for the task at hand because they are not true *there*-sentences, as 'the pronoun never triggers agreement with the finite verb to begin with (den Dikken 2001:34).' This can be shown in the following:

- (i) There's always them.
- (ii) *There are always them.

I am inclined to agree with him on this point, though not necessarily because of the lack of agreement. English agreement in existential constructions is more variable than often stated in the literature, with many dialects (including the author's) freely allowing singular agreement with plural associates (see Meechan & Foley 1994, Schütze 1999 a.o. for discussion), so it is not clear whether there is truly a different kind of agreement at play in (i). At any rate, the list reading of existential constructions does allow for definite DPs to be associates (iii), which is clearly disallowed in true existentials (iv):

- (iii) Well, there's always the pub if we get bored.
- (iv) *There is the pub on the corner.

⁴ I loosely use the term semantic agreement here to keep with Corbett's terminology. The CNPs do have semantic plurality, as shown by (7b) above.

unpredicted by type 1 approaches, that crucially disallow CNPs that can control plural agreement from appearing in existential sentences. But, as shown in (16), this is entirely fine:⁵

- (16) a. There is a committee meeting with each other in that room.
 b. There is a team starting to psych themselves up in that dressing room, I'd stay out.

Den Dikken (in his footnote 19) suggests that it may be possible to assimilate sentences like (16) under a theory of partial control (see Landau 2000), without offering a mechanism. It is unclear to me how a mechanism of partial control would unproblematically capture these facts, and the onus must be on a proponent of this view to show this.⁶ However, even if these sentences can be assimilated to a type 1 approach, the point above still stands that CNPs really can control both singular and plural agreement, rendering any type 1 distinction between singular and plural agreeing CNPs superfluous.

2.2. Elbourne's mereology

Elbourne (1999) offers an analysis of type 2, where there is no difference between a CNP that controls plural agreement and one that controls singular agreement. What is important for Elbourne, and my approach will follow in this spirit, is the structural position of the CNP. Elbourne assumes that all CNPs in BrE are simultaneously singular and plural, and have two features that encode number. Their number feature is singular, but there is also a *mereology* feature that is plural, which according to Elbourne (p87) 'indicates whether or not the entity under discussion is being conceived of as consisting of more than one member.' The mereology feature is lacking in dialects that do not show plural agreement from CNPs, such as AmE and so there cannot be any plural agreement there. Elbourne assumes that the restrictions on plural agreement come from a restricted nature of this mereology feature relative to the regular number feature. Crucially for Elbourne, the feature is not able to raise covertly, though it is not explained why this should be the case. Elbourne assumes the spec-head approach to feature checking of Chomsky (1995), where a spec-head relationship at some stage before the transfer to semantics is necessary for features to check.

Elbourne claims that this approach allows us to explain why there is no plural agreement in existential constructions with CNPs. He adopts the *there*-replacement approach of Chomsky (1995), where associates remain overtly low in existential constructions, but the features must raise covertly to check under spec-head agreement. If we couple this with the assumption that the mereology feature cannot raise covertly, then we can only get singular agreement in existential constructions. Elbourne assumes that the number feature on T^0 can either be singular or plural, and can be checked either by the number or mereology feature of the CNP. Now, in cases where the mereology feature is unable to enter into a relationship with T^0 , for instance when it would need to be done covertly, then the only derivation that will succeed is one where the number feature on T^0 is singular.

In order to capture the facts on scope reconstruction (there is no discussion but the predicate reading facts may be able to be captured in a similar vein), Elbourne appeals to PF-movement (for full discussion of this mechanism beyond BrE, see Sauerland & Elbourne

⁵ My thanks to an anonymous reviewer who points out the following sentence, where plural agreement is optionally permitted on the verb in the embedded clause:

(i) There is a committee that decide(s) the budget.

⁶ Note also that (16b) involves *start*, an aspectual verb, which Landau claims prohibit partial control.

2002). The idea is that in the sentences where a DP takes wide scope there is movement within narrow syntax. However, when an element reconstructs for narrow scope, but remains pronounced high, there is actually only whole category movement in the PF-branch. In narrow syntax, the DP remains in the low position and takes narrow scope at LF. Under the spec-head approach to feature checking the formal features of the DP must raise covertly to check the matrix T^0 features. Everything is fine in the sentences in (11a) where the singular number feature can raise, but the interesting case is (11b) where the narrow scope reading is lacking. Here, Elbourne claims what is happening is that the CNP remains covertly in the embedded clause and so takes scope underneath *likely*, but is pronounced high due to movement in the PF-branch. The reason why this sentence fails on the narrow scope reading is because the plural feature on the matrix T^0 is unable to be checked, as this would require the mereology feature of the CNP to raise covertly. Since this is not possible, the derivation crashes. Wide scope readings are possible because there is no covert feature movement involving the CNP; the mereology feature raises into the matrix clause when the CNP overtly moves there.

There are problems for this account however. Firstly, as shown by the following pattern from den Dikken (1995), it doesn't seem to be the case that there is covert feature movement to T^0 in existential constructions, otherwise we would expect the following binding configurations to be allowed:

- (17) a. Some applicants_i seem to each other_i to be eligible for the job.
 b. *There seem to each other_i to be some applicants eligible for the job.
 c. Someone_i seems to his_i mother to be eligible for the job.
 d. *There seems to his_i mother to be someone eligible for the job.

Elbourne's account crucially relies on the mereology feature being unable to raise covertly, and so if agreement between T^0 and the associate can be done at a distance in existential constructions, without any necessary movement of the features of the associate, then there is no way that Elbourne can account for the lack of plural agreement here. I also see no easy way that the 3/4 pattern can be accommodated into Elbourne's approach. There seems to be no good reason why one of the mismatches should be allowed whilst the other one is sharply degraded. Elbourne's system does allow agreement mismatches with demonstratives (see (6)), which he allows by stipulating that some processes such as demonstrative agreement can only target the number feature, whilst verbal agreement can target either number or mereology on the CNP. Elbourne's approach then fails empirically and we need to look for an alternative.⁷ In what I will propose below however, there is no fundamental problem with the style of approach Elbourne took, i.e. looking at the structural configuration of the sentence rather than the CNP itself. The problem for Elbourne though was the appeal to properties of the feature that expresses plurality. The actual explanation for why plural agreement is restricted however is that different agreement mechanisms access these features differently.

⁷ A further problem is the assumption that BrE has a mereology feature that AmE lacks. As far as I can tell, CNPs in both dialects are interpreted in exactly the same way, so despite Elbourne's claims that it indicates internal plurality of the CNP, it is unclear why BrE would encode this by means of a feature, when AmE can apparently do this without.

2.3. Summary

In this section I have outlined three approaches to the restrictions on plural agreement shown by CNPs. I showed that any approach which appeals to a distinction between CNPs that control singular agreement and those which control plural agreement, despite looking promising, fails empirically because a single CNP can clearly be shown to control both agreements simultaneously. Furthermore, it does appear as though CNPs that trigger plural agreement are able to be the associate of existential constructions, despite the fact that they are unable to control plural agreement on the verb in that context. Secondly, Elbourne's account was shown to be unable to capture all the empirical facts, and there are also conceptual issues that are left unexplained, such as why mereology cannot raise covertly. Importantly though, there does not appear to be anything that militates against the style of Elbourne's analysis (type 2), unlike as is the case for Sauerland's and den Dikken's. In the following two sections, I develop an approach where it is the structural configuration that determines whether plural agreement can be controlled by the CNP, first showing what is the (novel here) true generalization of where plural agreement is licensed, and then showing how we can capture the facts.

3. *LF-visibility*

In this section I show that it is in fact the structural configuration that is the main determinant of where plural agreement can be controlled by the CNP. The generalization at play is what I will term *LF-visibility* (in section 4.2 I provide an account of this generalization):

(18) LF-visibility (descriptive generalization)

With CNPs, plural agreement requires the controller to c-command the target at LF, but singular agreement does not.

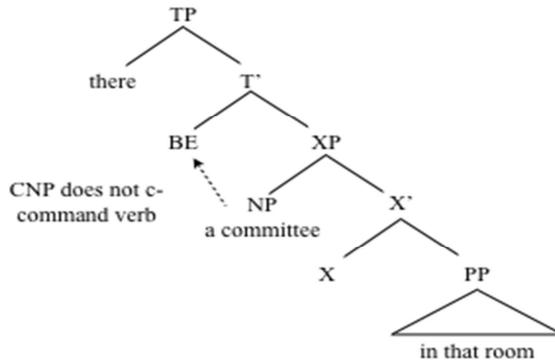
It should be noted that the generalization only covers the restrictions on plural agreement to do with existentials, reconstruction and predicate readings. The 3/4 pattern will be shown in section 5 to come from an economy condition that operates on feature valuation. What *LF-visibility* does is it allows us to predict precisely where plural agreement is able to be controlled, and where it is not able to be. Put simply, whenever the CNP is in a position that c-commands the target of agreement at LF, plural agreement can but need not be licensed. This differs crucially from the approaches of Sauerland and den Dikken, where plural agreement had to be controlled whenever it could be. In my system, and following in the spirit of Elbourne, agreement is a free choice whenever the structural configuration allows for one.

Consider first existential constructions. Existential constructions have been given many analyses in the literature (see for instance Chomsky 1995, Lasnik 1995, Bošković 1997, Bobaljik 2002, Hazout 2004, Witkoś 2004 amongst many others), but they really resist a common consensus. I do not attempt here to give an analysis of existential constructions, however, there is one aspect of them that is relevant for our purposes. In section 2.2 above I showed that one of the problems for Elbourne's analysis regarding existentials, was that he crucially relied on the *there*-replacement hypothesis of Chomsky (1995), where the associate raises to Spec,TP covertly in order to check features under spec-head agreement. The issue was the pattern in (17). This pattern shows that associates must remain in their low position at

LF, otherwise the binding configurations would be fine. As associates remain low at LF, they will never get into a position to c-command the verb. We can therefore represent the LF structure of existential constructions as in (19b), with BE indicating the copula before feature valuation. The CNP therefore does not c-command the target of agreement:

(19) a. There is a committee in that room

b.



We see that the situation is the same with scope reconstruction, which recall is only possible when there is singular agreement. Under the assumptions of Fox (1999) where scope reconstruction is simply interpretation of a lower copy of the DP, it will be the case that in (20), repeated from (11a), the narrow scope reading of the CNP arises from the CNP being interpreted in the lower clause in a position beneath likely.

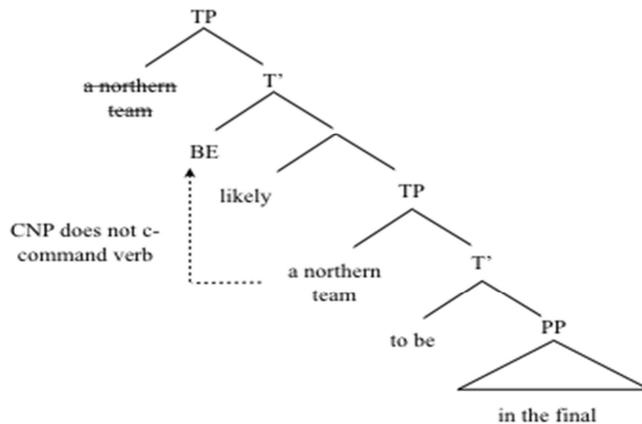
(20) ~~A northern team~~ is likely a northern team to be in the final. likely >

This reading is not possible when there is plural agreement:

(21) *~~A northern team~~ are likely a northern team to be in the final. *likely >

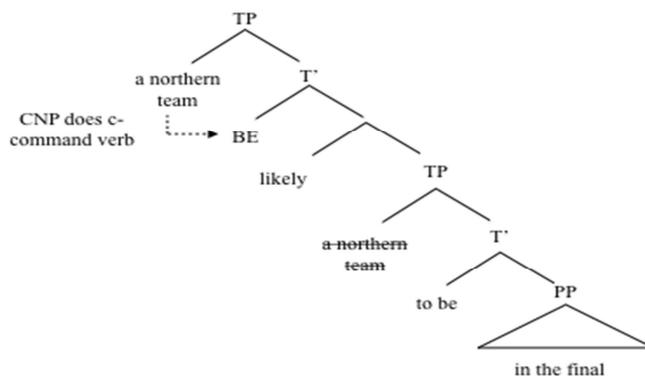
If we abstract away from the agreement on the verb and look at the LF-configuration, we can see exactly the same situation as with the existential constructions above, namely that it is when the CNP is in a position that does not c-command the target of agreement (here the verb) at LF that plural agreement is unable to be controlled:

(22)



In the wide scope configuration however, where plural agreement is licensed, we see that the CNP does c-command the verb:

(23)



This allows us to draw a stronger conclusion than was the case with the existential sentences. There, it could have been the case that the position of pronunciation of the CNP was important, which is the same as the position which it is interpreted in. However, from the scope reconstruction cases, we can see that it really is the position of interpretation which is important. In both the wide scope reading and the narrow scope reading, the CNP is pronounced in the same position. In the wide scope position both agreements can be licensed, however in the narrow scope reading only singular agreement is possible. This strongly suggests that it is the LF position of the CNP which is important for determining whether plural agreement is licensed.

Confirmation of this is given by the lack of plural agreement when there is a predicate reading of the CNP. Recall the data that we are interested in from section 1, (12), with the associated readings in (13), repeated below:

- | | |
|---------------------------------------|---------------------------------------------------------------|
| (12) a. The best committee is theirs. | committee = $\sqrt{\text{subject}} / \sqrt{\text{predicate}}$ |
| b. The best committee are theirs. | committee = $\sqrt{\text{subject}} / * \text{predicate}$ |

- (13) a. The best committee belongs to them. (subject reading)
 b. The committee that they belong to is the best committee. (predicate reading)

The first thing to note about the different readings is that they seem to arise from two distinct constructions. The subject readings come from a construction where the subject of the predicate raises from the small clause into Spec,TP. The predicate readings on the other hand involve a predicate inversion structure, like the sentence in (24) (see den Dikken 1998). Here the predicate *the fastest creature in this zoo* has overtly raised into Spec,TP and the subject of the predicate (to adopt den Dikken's 2007 terminology) remains within the small clause:

- (24) The fastest creature in this zoo is that cheetah.

The overt structures for the subject reading and the predicate reading are thus as in (25a,b) respectively, with XP denoting a small clause:

- (25) a. [TP [DP The best committee]_i BE [XP t_i [X' X [DP theirs]]]]
 b. [TP [DP The best committee]_i BE [XP [DP theirs] [X' X t_i]]]

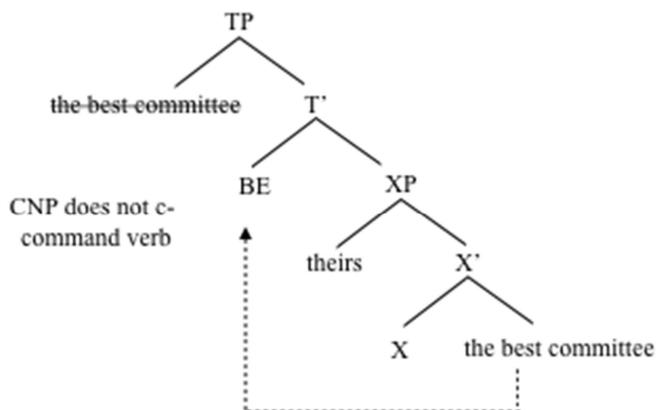
This looks problematic for the generalization given in (17), since the CNP in (25b) appears to be in a position to c-command the target of agreement, T⁰. English finite verbs show a very strong preference to agree with the element in Spec,TP and so the predicate will be the controller. We can see this from instances when the predicate and the subject of predication differ in ϕ -features. In this case, we find agreement with the predicate rather than the *in situ* subject (examples slightly modified from den Dikken 2007):

- (26) a. The biggest problem is/*are the children
 b. The best candidate is/*am me.

This is problematic, because as things stand, we seem to have a CNP that cannot control plural agreement, despite being in a position where it should be able to (given that I am arguing for *LF-visibility*). However, Heycock (1995) shows that just as is the case with scope reconstruction, the overt position of a predicate is not necessarily that where it is at LF. Specifically, Heycock argues that predicates obligatorily reconstruct into their base position at LF.⁸ So, at LF the predicate readings will actually have the structure as in (27), with the strikethrough indicating the pronounced, but not the interpreted position. Nothing changes in the subject readings; not being predicates the subject of predication is fine to stay in Spec,TP throughout the derivation after moving there.

⁸ Thanks to Karlos Arregi (p.c.) for pointing the relevance of Heycock's work to me.

(27)



To summarize this section, we can see from the LF structures in (19b), (22) and (27) that plural agreement is not licensed precisely in those environments where the CNP does not c-command the target of agreement at LF. Singular agreement however is not subject to the same restrictions, and is licensed in all of the configurations under discussion. It seems unlikely to me that the licensing of plural agreement is unconnected to the structural position of the CNP, given that we find the same state of affairs in all the cases above. *LF-visibility*, which descriptively captures this state of affairs, is therefore the generalization that we should strive to explain in order to understand why plural agreement from CNPs has the restrictions it does.

Before moving on from this section, I wish to briefly discuss two potential counterexamples, showing that they too can plausibly be subsumed under the present proposal. Firstly, den Dikken (2001:fn16), citing personal communication from Maurice Williams, gives the following sentence where there is plural agreement in an apparent existential construction:

(28) There **are** in the room [a committee that...]

Den Dikken notes that plural agreement is only good if the associate is sufficiently heavy, and concludes that these constructions are not true existential sentences, but have some different analysis. Locative inversion also seems to allow for plural agreement, though there is variation among speakers here:

(29) %Out in the hallway are a committee.

(28) and (29) at face value seem to argue against *LF-visibility*, as we have plural agreement despite the CNP not c-commanding T^0 . However, there does seem to be room to fit them in. Note that there is focus at play in both of these constructions. Given the heaviness requirement, (28) can be plausibly treated as some form of heavy NP shift (HNPS), which does involve focus on the shifted NP (Williams 2003). Locative inversion is also well known to require a specific type of focus, namely *presentational focus*, see Rochemont (1986) and Bresnan (1994). Williams notes that there is a general preference for focus to be right peripheral in English (though this is a preference, not an absolute requirement, see Bobaljik &

Wurmbrand 2012 for pertinent discussion here). Suppose then that focus of the type required in HNPS and locative inversion triggers movement to a rightward peripheral position, which I assume to be at least as high as adjoined to TP, possibly higher.^{9,10} Space limitations prevent further investigation here, but I leave the matter open for future research.

4. Whence LF-visibility?

Up to this point I have shown that the restrictions on plural agreement with CNPs are not attributable to something that makes CNPs that control plural agreement different from those that control singular agreement. This was the failure of type 1 approaches discussed in section 2. The real issue must therefore be something separate from the CNP itself (as a whole). Elbourne (1999) explored the idea that the determining factor was that the feature encoding plurality on the CNP was unable to raise covertly, and it was this that accounted for the fact that plural agreement was more restricted than singular agreement. In section 3 I showed that Elbourne was on the right track in looking at the structural position of the CNP, as by looking at the LF positions we can predict the environments in which plural agreement is licensed. As Elbourne's account was unable to capture the facts we cannot posit any difference in behavior between the features themselves so we must look for an alternate explanation. Here I will propose the restrictions on plural agreement do not come from anything about the CNPs themselves, nor the features that comprise them; rather it is the mechanism of agreement that renders plural agreement more limited than singular agreement.

4.1. Simultaneous number

Firstly, I follow Elbourne (1999) and Wechsler & Zlatić (2003) in assuming that CNPs are simultaneously encoded for singular and plural features. However, I make the stronger claim that this is true for all dialects of English, not restricted to BrE.¹¹ I make this stronger claim for two reasons. Firstly, as far as I can tell, CNPs are not interpreted any differently across the dialects of English, and BrE doesn't seem to allow for a wider range of readings than, say, AmE, so the idea that BrE is special in this respect strikes me as unlikely. Secondly, Levin (2001) provides a corpus analysis of agreement patterns in English, where it is shown that BrE has a higher rate of plural agreement than AmE with CNPs in both written and spoken form. This is not surprising, as speakers of AmE judge sentences with plural agreement as ungrammatical. Interestingly though, Levin shows that the rate of plural agreement in Australian English falls somewhere in between BrE and AmE. From my own consultation with speakers of Canadian English (see also Landau 2000:48), this dialect also allows for

⁹ Thanks to Jason Overfelt (p.c.) for suggesting an approach along these lines.

¹⁰ There is some reason to believe that the rightward movement would be at least as high as TP (though perhaps even higher if focus positions are within the CP, for instance Rizzi 1997). Rochemont (1986) assumes a movement to the right edge of VP, however due to anti-locality (see for instance Grohmann 2003, Bošković 2005) movement from within VP to adjoin to VP will be too short. In (28,29) movement of the CNP would need to evacuate at least the XP that it's base generated in and move at least as high as TP.

¹¹ Perhaps even in a wider range of languages. There are scattered examples of CNPs in languages removed from English which apparently show plural agreement, see for instance Corbett (2000:188-191), who cites Spanish, Old Church Slavonic, Paumari, Kabardian and Samoan as some examples. Ana Bastos-Gee (p.c.) also informs me that something similar is possible in colloquial Brazilian Portuguese. Space constraints prevent me from looking further at these here, so I refer the reader to the discussion in Corbett (2000) and references therein (where CNPs are referred to as *corporate nouns*).

plural agreement, though perhaps it is not as readily accepted as BrE (New Zealand English is also reported to pattern like BrE but at a slightly lower frequency, Corbett 2000:189). The fact that there is varying rates of acceptance across the dialects of English, in particular the data from Levin, which is extensive, shows that there is clearly not a situation where some dialects have some feature on CNPs that allows them to agree plural, whilst others lack it. This would lead us to expect binary distinctions between dialects of those that either allow or disallow plural agreement, yet this is not the case. What seems to be happening is that *all* dialects of English have the ability to license plural agreement - so have the same feature specifications for CNPs - but there is variation across the dialects in how acceptable it is. Elbourne assumed that the plural (his mereology) feature was missing from AmE CNPs, but this appears to be an illusion. Rather, the plural feature is there but AmE speakers simply do not access it.

This idea has been suggested before in a different guise. Landau (2000) proposes that CNPs in BrE and AmE have the same semantic and syntactic specifications based on partial control. As shown by Landau, PRO in partial control contexts can inherit semantic plurality even from DPs that are morphosyntactically singular. The CNPs under discussion here are clearly morphologically singular (cf. *committees*, which is the plural version), but speakers of AmE clearly allow CNPs to occur with predicates that express semantic plurality, such as the collective predicate in (30):

(30) The committee gathered to discuss the proposal.

As Landau shows however, it is only speakers of BrE who allow for plural syntactic dependencies, such as the ability to license anaphors in partial control contexts. (31) is thus ungrammatical in AmE but fine in BrE:¹²

(31) %John told Mary that he preferred to meet each other at 6 today.

Landau concludes from this that whatever encodes semantic plurality (which I take here to be a feature for reasons that will become clear presently) is syntactically active in BrE, but syntactically inert in AmE. That is, in AmE it does not do anything until semantics, but in BrE it can play a part in the derivation, and by extension feature valuation. The range across the dialects will simply come from how acceptable each dialect finds plural agreement.¹³

Returning to the task at hand, I propose then that CNPs should have the following feature specification for number; they are morphosyntactically singular but semantically plural:

(32) {*u*F:singular, *i*F:plural}

The idea behind (32) is that ϕ -features are comprised of pairs which are divided at transfer to the interfaces (see Wurmbrand 2012a for a similar proposal). A feature which has the need to be expressed both morphologically and semantically will come in two parts. Number is such an example since it is expressed in the morphology, but clearly needs to be present in

¹² Hazel Pearson (p.c.) informs me that there isn't uniform agreement of Landau's relevant examples by speakers of BrE, so we must take the conclusion with a pinch of salt. Nothing too important for me rests on Landau's active/inert distinction, but it is a natural fit with what I am proposing.

¹³ Here I do not discuss how exactly this would work, but an interesting idea pointed out to me by Jonathan Bobaljik (p.c.) is the multi-grammar approach of Yang (2002). I leave this open for future research, but note also that Yang's approach may also give us some explanation for why singular agreement is in general more frequent, depending on the weighting of the speaker's grammars.

semantics. Case features on the other hand I assume to be only morphological as I see no plausible semantic import. At spell-out, the features are sent separately to the interfaces. *i*Fs, interpretable features, are sent to semantics and are what get interpreted, whilst *u*Fs, the semantically uninterpretable morphosyntactic features that are usually manipulated by the syntactic component, are sent to PF and realized morphologically. In the overwhelming majority of cases, at least in English, *i*Fs and *u*Fs of NPs will have the same value so they look as though they are simply one feature. It is in the cases where the values diverge, as is the case with CNPs, that we see that ϕ -features really are built up of separate parts.¹⁴ Crucially, the features necessarily split at spell-out; *i*Fs are never present in the morphological component and vice versa. Note that I am not adopting the proposal of Chomsky (2001), where feature uninterpretability is directly correlated with a lack of a value. Instead, I adopt the assumptions of Pesetsky & Torrego (2007) and Bošković (to appear), where both uninterpretable features and interpretable features can be unvalued, and so must agree with another feature in order to get a value (see section 4.2 for further discussion). This will be important, as I assume that anaphors have *unvalued interpretable* features that must be valued within the syntax via an Agree relationship (see the discussion in section 4.2 below).

As will be discussed in greater detail below however, there are instances where *i*Fs can have a morphological effect, but only when they enter into feature valuation within the syntax prior to spell-out. Once a feature is valued within the syntax there is no need to value in the morphology, so we will see semantic agreement overtly manifested. This can only happen when semantic features are accessible to the syntax, which normally only manipulates the morphosyntactic *u*Fs. BrE is thus special in this respect compared to AmE, as the *i*Fs on CNPs are syntactically active.

Following this assumption about the nature of features, coupled with Landau's conclusion that the semantic number (so the *i*F:plural) of BrE CNPs is syntactically active, we can see why BrE does allow for plural agreement but AmE does not. In AmE the *i*F is not able to be accessed by the syntax, nor be visible to any post-syntactic valuation (having been sent to semantics), so there is no opportunity for the number feature on T⁰ to be valued plural and have effects for lexical insertion. In BrE however, as long as the valuation happens in the syntax via Agree, T⁰ (or some other element) can have a plural value.

4.2. *The locus and direction of agreement*

In the previous subsection we saw why it is the case that AmE does not allow plural agreement, but BrE does. However, nothing in the discussion there got to the issue at the heart of this paper, namely why is plural agreement more restricted than singular? Here I will give an answer to this, before walking through some derivations in the next subsection.

Much work in minimalist syntax has taken agreement (here, feature valuation) to happen exclusively within the syntax, see for instance Chomsky (1995, 2000) and Bošković (2009) for just some instances of this. However there has been heated debate over this point and there is recent work suggesting that there is a need to have agreement at least in part happen post-syntactically. Bobaljik (2008), building on the ideas of Marantz (1991), takes a strong position and proposes that *all* agreement is post-syntactic, and is exclusively handled within the morphological component. Other work has taken the middle ground, and argued that

¹⁴ Another example would be grammatical gender, which is clearly arbitrary in many languages. *Mädchen* (girl) in German for instance is grammatically neuter, but semantically feminine, and pronouns can agree with either gender.

agreement happens both within the syntax and post-syntactically. Examples of this approach are Migliori (2011), Arregi & Nevins (2012), Wurmbrand (2012a) and Bhatt & Walkow (to appear). I will also adopt this approach, though there are differences between my system and the above. Crucially what I will propose is that agreement works differently within the different domains. Agreement within the syntax is unidirectional whereas post-syntactic agreement is bidirectional.

Looking cross-linguistically, there is plenty of evidence that morphological agreement is bidirectional, and that a target for agreement can be valued by an element that either c-commands it, or it c-commands. Baker (2008) draws this conclusion and argues that the traditional Chomskian agreement mechanism (see for instance Chomsky 2000, 2001), which is generally taken to be downward probing, really needs to allow for probing to look either way. Whilst Agree going downwards is widely assumed since Chomsky (2000), Baker argues that any c-command relation between probe and goal is sufficient. Therefore even if the agreement target (the probe in minimalist terms) does not c-command the controller (goal), as would be required for Agree in the system of Chomsky (2000), an Agree relationship is still possible as long as the controller c-commands the target, resulting in the possibility of upward agreement. We can see both directions manifested in Icelandic. (33a) (taken from Zaenen, Maling & Thráinsson 1985) shows agreement in a downward configuration, where the target T^0 gets its ϕ -features valued from a controller that it c-commands, the nominative object. (33b) (from Baker 2008) shows upward agreement, where the predicate adjective target gets its features valued by the controller that c-commands it:

- (33) a. Um veturinn voru konunginum gefnar ambáttir. (Icelandic)
 In the.winter were.PL the.king.DAT given slaves.NOM
 ‘In the winter, the king was given (female) slaves.’
- b. María er góð.
 Maria.NOM is good.F.SG.NOM
 ‘Maria is good.’

I adopt the spirit of Baker’s proposal here, but following Bobaljik (2008) I take agreement of this nature to be in the post-syntactic component. There is also a need however to have some feature valuation within the syntax. Take for instance binding of anaphors. Following Reuland (2001, 2011) I assume anaphors to be unspecified for their features and so must enter into a relationship with an antecedent to get a semantic value and a morphological value. As there is a need to value a semantic feature, valuation cannot be solely in the morphology, as the *i*Fs cannot receive a value there. Therefore, valuation must happen at least in part elsewhere, so I assume this to be syntactic (anaphors are also well known to show locality effects similar to syntactic locality). There already exists within the minimalist framework such an operation, namely Agree, see Chomsky (2000, 2001) (see also Pesetsky & Torrego 2007, Bošković 2007 for variants on Chomsky’s Agree). The conception of Agree that I will adopt however is Reverse Agree, put forward by both Zeijlstra (2010) and Wurmbrand (2012a, to appear). They argue that downward agree is insufficient, given phenomena such as negative concord, anaphor binding, parasitic participles, amongst others. The crucial problem is the direction of Agree. Under the traditional Chomskian conception, Agree is downward probing, where an unvalued feature probes into its c-command domain to look for a matching feature from which to get a value. However, the phenomena discussed by Wurmbrand and Zeijlstra indicate that syntactic dependencies are really the opposite, with the unvalued feature

in a position where it gets a value from something that c-commands it. Under the Reverse Agree approach, as suggested by the name, Agree is reversed; the unvalued feature gets valued by a higher valued feature, with the probe looking upwards in the tree for a goal (I refer the reader to both Zeilstra's and Wurmbrand's work for further motivations and benefits to this system, which for space considerations I am unable to address here). A definition of syntactic agreement that I will adopt is given in Wurmbrand (to appear):

(34) Reverse Agree

A feature $F: _$ on a head α is valued by a feature $F:val$ on β , iff

- i. β c-commands α .
- ii. There is no γ with a valued interpretable feature F such that γ c-commands α and is c-commanded by β .
- iii. α is accessible to β .

Consider what all this does for us so far. In section 4.1 I outlined the view of features that I assume, where what is usually taken to be a single ϕ -feature is actually comprised of two parts, an interpretable iF and an uninterpretable uF , which are used by the semantics and morphology respectively. If agreement is post-syntactic (i.e. at morphology), the unvalued feature can look either way in the structure, both up or down, keeping to Baker's (2008) conclusion on the bidirectional nature of agreement. As long as the uF is accessible to the feature that is trying to agree with it (by which I mean within the same phase) and there is some c-command between them (one has to c-command the other), then valuation will be able to take place. For our purposes with CNPs, singular agreement, being the uF value on the CNP, will be bidirectional. Plural agreement on the other hand involves the iF of the CNP. So, if some feature tries to agree with the iF of the CNP, it must do so within the syntax, as the iF will not be present in the morphological component for valuation there (recall that only uFs are sent to morphology). Therefore, when plural agreement is controlled by a CNP, the valuation must have happened within the syntax, and consequently must have involved Reverse Agree. Plural agreement with CNPs is thus unidirectional.

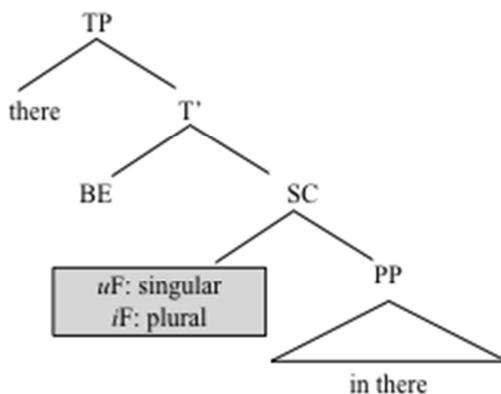
This gets us most of the way to explaining why plural agreement is more restricted than singular agreement, since the direction of agreement is restricted, but there is a step missing. In the case of scope reconstruction, so far there is nothing to stop a derivation where T^0 agrees with the high copy of the CNP within the syntax, valuing plural on T^0 in keeping with Reverse Agree, but then the lower copy of the CNP gets interpreted by the semantics giving a narrow scope reading. Such a situation would violate *LF-visibility*. We would thus expect plural agreement in reconstruction contexts, contrary to fact. Similarly, in the case of predicate readings, we would predict right now that plural agreement should be fine on a predicate reading of the CNP, since valuation of plural happens before the reconstruction of the predicate, again contrary to fact. There is a simple way of solving this problem. I assume that Reverse Agree, that is syntactic valuation, is evaluated at LF, following Bobaljik & Wurmbrand (2005) who argue that this is the case based on data from German, Japanese and Itelmen (so this is not an English specific proposal). Having Reverse Agree happen at LF is fairly simple if we adopt the single output syntax model of Bobaljik (1995, 2002) and propose that syntactic feature valuation is the last thing that happens before the phase is sent to the interfaces. That is, when an item has been merged more than once into the derivation, transfer to the interfaces involves choosing the position in which to realize the iFs and the uFs , and then Reverse Agree is evaluated. In effect then, syntactic valuation of features is really valuation at the point of transfer.

4.3. Derivations

The preceding discussion guarantees that plural agreement is never possible when the CNP does not c-command the target of agreement and so *LF-visibility* is entailed by the system. If the CNP is to be interpreted in a position lower than the target (e.g., T^0), the *iF* feature will not c-command it, and therefore be in a position inaccessible for the target to value via Reverse Agree.

To see exactly why we have explained the restrictions on plural agreement with CNPs, allow me to walk through the relevant derivations. Firstly, we can very simply see that there cannot ever be any plural agreement in existential constructions where a CNP is the associate. Recall from den Dikken's (1995) examples given in (17) above, the associate in existential constructions is interpreted with narrow scope relative to T^0 , and is of course pronounced in the same position. Showing the position of the number features of the CNP in the grey boxes in the below trees, we can see that the *iF* cannot be accessed by T^0 as the valued feature does not c-command the unvalued feature of T. Reverse Agree therefore will not yield a value for T and it must wait until morphology to get a number value. In this case it will be valued singular, because the singular feature is accessible, with agreement going either way:

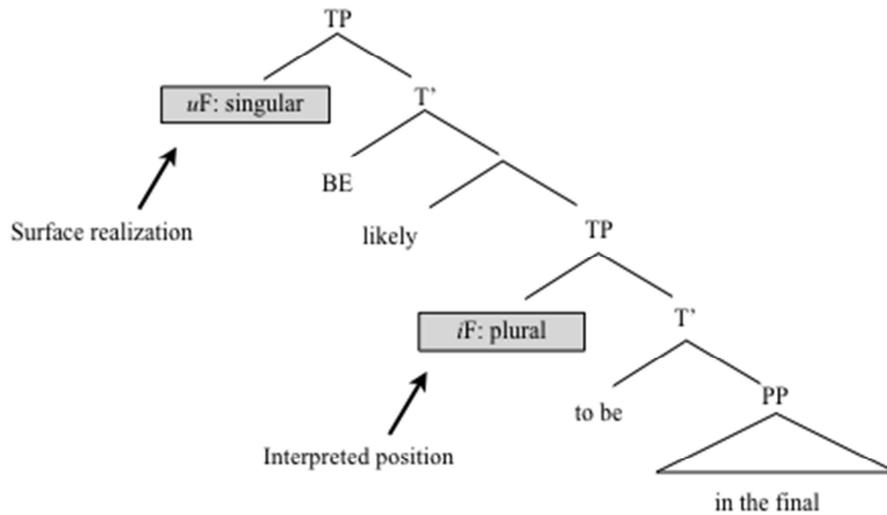
(35)



Similarly, in the scope reconstruction cases we can see why both singular agreement and plural agreement is possible when the CNP takes wide scope relative to T^0 . In this position, Reverse Agree can happen and find a value of plural, because the *iF* features of the CNP are interpreted in the high position. If T^0 waits until morphology to value its features, then singular agreement is also possible. On the other hand, if the CNP is interpreted with narrow scope, then the *iF*s of the CNP are beneath T^0 . In this case, T^0 is unable to get a plural value for its number feature. Recall that privileging of copies involves choosing where to interpret the *iF*s and where to pronounce the *uF*s of a DP that has merged more than once into the structure. The number feature of the DP splits its *uF*s and *iF*s and they are in separate places in the structure. Thus, in scope reconstruction cases, what is happening is the *iF*s of the reconstructed DP are realized in the embedded clause in order to get the narrow scope reading whilst the *uF*s are pronounced in the higher clause. Importantly, when the CNP reconstructs, the plural number *iF* will be inaccessible to T^0 at the point where Reverse Agree is evaluated, as in the embedded clause it does not c-command T^0 . If T^0 waits until morphology, then it still can only agree singular, as only the singular *uF* will be present in the morphological

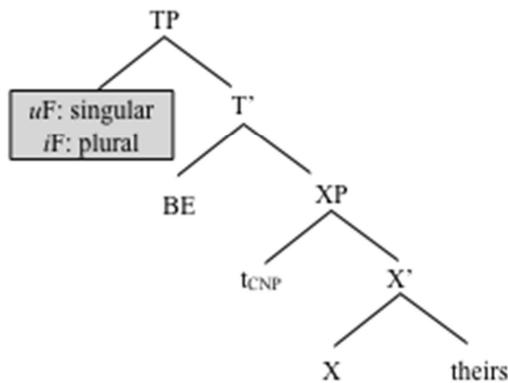
component.¹⁵ Therefore, there cannot be plural agreement when the CNP takes narrow scope. The LF configuration is shown in (36):

(36)

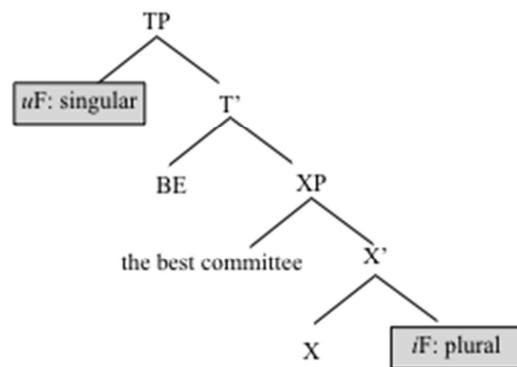


Finally, it is also explained why there is no plural agreement when the CNP is a predicate, but there is when it is the subject of a predicate. In the subject readings, there is pronunciation and interpretation in Spec,TP, so the plural *iF* is accessible to T^0 via Reverse Agree. Predicates on the other hand must reconstruct at LF, and so the *iF*s of the CNP will not be accessible to T^0 via Reverse Agree, rendering plural agreement impossible.

(37) a. Subject Reading



b. Predicate Reading



¹⁵ In principle T^0 could also be valued singular by Reverse Agree, since the *uF* feature is in an accessible position.

5. Mixed agreement and the 3/4 pattern

Having shown why plural agreement is restricted, I now return to the cases of mixed agreement, and show how the 3/4 pattern can be incorporated into the current system. I also discuss why there is only ever singular agreement on demonstratives. The cases of mixed agreement are important to the issue at hand, but also in a wider theoretical context because it was these that led us to reject the approaches of Sauerland and den Dikken, where CNPs that controlled plural agreement were different from those that controlled singular agreement. This in turn led us to adopt the idea that ϕ -features are really pairs and ultimately laid the foundation for explaining why CNP plural agreement is restricted in the way that it is.

Consider first the 3/4 pattern, repeated in (38) below. As shown above, this pattern is completely unpredicted for Sauerland and den Dikken, and also causes problems for Elbourne:

- (38) a. The government has offered itself up for criticism (with this economic policy).
 b. The government have offered themselves / each other up for criticism.
 c. The government has offered [?]themselves / each other up for criticism.
 d. *The government have offered itself up for criticism.

This pattern also seems to cause a problem for the current system. Why should it be the case that (37d) is not possible? Nothing prevents the converse of (38c), which is ok. There is a very easy way that the pattern can be accommodated once we adopt the economy condition on feature valuation I call *valuation economy*, given in (39). This condition ensures that when there are multiple elements agreeing with some controller in the same domain, they will all get valued by the same feature on the controller. Importantly, the condition does not apply across different domains (which, as we have seen above, also involve different valuation mechanisms). Mismatches are possible only insofar as the different valuations happen at different points of the derivation. So, in the current setting, we can have agreement mismatches when two elements agree with different features on the same controller, as long as one valuation happens syntactically and one valuation post-syntactically. If both happen at transfer, or both happen post-syntactically, they must target the same feature and the values will be equal.

(39) Valuation Economy

When an element enters into more than one agreement relation in the same domain, the same feature on the controller must be used for all targets of the same type.

Once we adopt this condition, (38d) actually becomes underivable, and predicted to be ungrammatical, whereas (38c) is still predicted to be fine. To see how, consider first (38a). Recall from section 4.2 that I assume that anaphors, involving *iF* features being valued, must enter into a Reverse Agree relationship at transfer in order to value their features for semantics. Therefore, the singular number on *itself* must have come about by syntactic valuation. (39) then restricts what value can appear on the verb in (38a). If the verb also tries to get a value at transfer, then by (39) it can only target the singular feature of the CNP, as targeting the plural feature would cause different values to be controlled by the CNP in the same domain. The verb can also wait until morphology to value its features, in which case the only value it can get is singular anyway since there are only *uF*s in the morphology. There are thus two possible derivations for (38a), but both will yield the same result. In (38b), where

there is plural valuation on both the anaphor and the verb, we see a clear case of (39) holding within the syntax. The anaphor values plural via Reverse Agree, ensuring that the only valuation that T^0 can get within the syntax is plural, which it does get.

The interesting situation is now what happens if the derivation proceeds as in (38b), with the anaphor valuing plural, but T^0 waits until morphology to value its number feature. In this situation, we expect a mismatch to be possible. Different features will be able to be targeted on the CNP, since the valuations are happening in different domains and *valuation economy* is not an issue. In this case, T^0 can take singular agreement post-syntactically, and we will end up with a sentence where the verbal agreement is singular, and the anaphor plural. This is what we find in (38c), which is of course the permitted mismatch. Now all that remains to be explained is why we do not find the converse and (38d) to be acceptable. The answer is simple. In (38d), the anaphor will be valued singular. Therefore, by (39) the only value that T^0 can get via syntactic valuation is singular. To get any different value would require waiting until morphology. However, in the morphology the only feature on the CNP is the singular *uF*, and so if T^0 does wait until morphology we would find a sentence with singular verbal agreement and a singular anaphor, which is of course (38a). The only way that (38d) can actually be derived is if the anaphor is valued singular at transfer, and T^0 also values *at transfer*, targeting the plural feature. This however violates (39) and is predicted to be ungrammatical, which it is. There is simply no derivation where we can get the illicit mismatch. The mismatch we do find however is possible because there is a well formed derivation with valuation occurring across different domains.¹⁶

Having seen that mismatches in agreement are possible, and provided a way of predicting which mismatches we expect to find, I now turn to the other mismatch that has been noted in the literature, where a singular demonstrative co-occurs with plural verbal agreement, such as in the following (from Elbourne 1999):

(40) {3,5,7,9} This set are all odd.

Interestingly, CNPs can never have plural demonstratives:

(41) {3,5,7,9} *These set are all odd.

There is nothing that fixes one agreement within the syntax here and so (38) is not going to help. But, there is an appealing way in which the pattern can be captured in the preceding discussion. As long as we take c-command in Wurmbrand's definition of Reverse Agree given in (34) to mean *asymmetric* c-command (see Wurmbrand 2012b for this idea), then a demonstrative will not be able to Reverse Agree with the CNP which it modifies, as there is

¹⁶ Some readers may at this point be questioning why features wouldn't either all wait until morphology to get valued, or all get valued right away, both of which, due to (38), would entail that mismatches would never be possible (thanks to Željko Bošković (p.c.) for pointing out this concern to me). The issue is reminiscent of the discussion of *procrastinate* in Chomsky (1995) where features wait as long as possible to check, and the opposite approach where features check as soon as possible (Pesetsky 1989). As far as I can see, the issue does not really arise here. The issues surrounding *procrastinate* are only present in a system where one type of valuation is inherently more economical than another type of valuation. I do not make this assumption, and so assume valuation to be of the same cost, regardless of where it occurs. All that matters is that all features get a value at some stage of the derivation. Some features however will have to be valued at transfer, as they involve valuation of *iFs*, such as is the case with binding and so cannot wait beyond this point. Doing so would leave features unvalued and cause the derivation to crash. Wurmbrand (2012a) articulates this further, and I refer the reader to her work for further discussion.

no asymmetric c-command relationship between the demonstrative in the D^0 , and the CNP, which is sister to D^0 .¹⁷ The only way it can get valued is in the morphological component, resulting in singular agreement only. If c-command is not necessarily asymmetric, and in fact reduces to whatever the element is merged with (see for instance Epstein 1999 and Neeleman & van de Koot 2002 for different instantiations of this idea) then the demonstrative could potentially get a value via Reverse Agree, by agreement under sisterhood with the CNP it's merged with. In this case we would need to look elsewhere to find an explanation for the impossibility of plural agreement on the demonstrative. This issue however goes well beyond the scope of the discussion in this paper, so I leave the matter open.

6. Conclusions

In this paper I have argued for a treatment of CNPs in BrE that increases our empirical coverage of the facts, whilst keeping to the intuitive idea that CNPs in BrE are simultaneously singular and plural. I have also proposed that we are able to stretch this idea across all dialects of English, allowing us the conceptual advantage of not needing to posit any differences in the lexical items across the dialects. Rather, the difference comes from a parameterized difference across the dialects of English as to how readily speakers are allowed to agree with the semantic information on the CNP. Restrictions on plural agreement being controlled by CNPs have been shown to follow from how these features are accessed by agreement, and importantly not from any differences among CNPs or their features. Various questions remain to be solved which I must leave for further work. For instance, how exactly we are to encode this parametric difference between the dialects of English. It seems possible to appeal to language (and dialect) dependent thresholds on Corbett's (1979, 1983) hierarchy to do this, but it remains to be seen whether such an attempt can be truly explanatory or merely descriptive.

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Peter W Smith
University of Connecticut
peter.w.smith@uconn.edu
<http://homepages.uconn.edu/~pws10003>

¹⁷ Thanks to Jonathan Bobaljik (p.c.) and Andrew Nevins (p.c.) who independently pointed this out to me.

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Umlaut and lowering in Swiss German

Regula Sutter

Bromberger and Halle (1989) claimed that rule ordering is a necessary part of phonology, but not of syntax, and that phonology and syntax are thus different. Their only synchronic evidence, Canadian Raising, was debunked by Kaye (1990, 2012). This paper shows that another piece of purported evidence, namely Kiparsky's often cited rule ordering in two dialects of Swiss German fares no better. Both rules are factually wrong and have to be dismissed. With no rules left, nothing can be ordered. I conclude that Kiparsky's example submits no evidence in favour of Bromberger and Halle's claim. There is no reason to assume that phonology and syntax should be fundamentally different.

1. Introduction

Are phonology and syntax the same or different? Bermúdez-Otero & Honeybone (2006) have summarised different answers to this question that were en vogue over the course of time. They conclude that during the 1950's, 'the objects of study of phonology and syntax were taken to be highly analogous and, in essence, subject to identical principles' (Bermúdez-Otero & Honeybone 2006:547). Even later 'while transformational grammar remained in the ascendant, phonology and syntax developed more or less in tandem' (Bermúdez-Otero & Honeybone 2006:548). Consensus seems to have been lost during the 1980's, with the advent of Chomsky's Principles and Parameters framework (Chomsky 1981). In their famous 1986 paper ('Why phonology is different'), Bromberger and Halle make the very strong claim that there is a fundamental difference between syntax and phonology: while syntax was able to move on from rewrite rules and their extrinsic ordering, phonology will never be able to follow up, because rules and their ordering are an integral part of phonology itself.

The question whether phonology and syntax are different or parallel can be transformed to the following question: are rewrite rules and their ordering an integral part of phonology? If they are, then it follows that phonology and syntax are indeed different. If phonology can do without rules and their ordering, there is no need to assume that they are different.

Koutsoudas et al. (1974) are among those who have tried to argue against an extrinsic ordering of rules, claiming that the ordering of the rules can be read off the rules themselves

in some way or other. Nevertheless, rewrite rules are still widely accepted as a part of phonology (cf. Mascaró 2011).¹

Government Phonology (hereafter GP) has challenged Bromberger and Halle's view from the very beginning (Kaye et al. 1985): it applied a principles and parameters approach to phonology. Other concepts of Chomsky's Government and Binding syntax also found their way into GP, examples include the Empty Category Principle (Kaye et al. 1990) and the Minimality Condition (Charette 1989). With the recent development of GP 2.0 (Pöchtrager 2006), the ties between phonology and syntax have become even closer. Phonological structures are no longer linear, but tree structures that allow for (embedding and) recursion. Concepts such as c-command, binding or islands have been shown to play an important role in phonology as well (Stegovec 2011; Živanovič et al. 2009). Phonology is thus far from different from syntax, it is in large parts identical to it.

This should not come as a surprise. After all, the tasks of syntax and phonology are rather similar: both of them deal with the structure of some aspect of human language and how the system underlying that aspect is represented in the mind. It is thus easy to see that the null-hypothesis is to assume that the two linguistic subfields should basically be parallel in their make up, and utilise the same basic principles.

Almost all of the arguments brought forth by Bromberger & Halle consisted of diachronic evidence. However, there is no convincing explanation of why historical data should be relevant to the theory of phonology. As a linguistic theory is a model of how language processing (and production) works in the mind of a speaker, knowledge of historical facts cannot be relevant. The key here is acquisition: there is no way a toddler could have access to diachronic data during acquisition, but she is still perfectly capable of acquiring the system. Diachronic evidence cannot therefore play a role in the system, and has to be rejected as irrelevant. The only piece of synchronic evidence in Bromberger & Halle's (1989) paper was the example of Canadian Raising – probably one of the most famous examples in phonology.² Kaye (1990, 2012) has shown convincingly that this evidence does not hold.

Outside Bromberger and Halle's paper, other examples for the necessity of rule ordering in phonology have been brought forth. In this paper I will show that a piece of often-quoted purported evidence is not valid either: Kiparsky's (1968) example of Swiss German umlaut and lowering. In order to achieve this goal, I will first (unjudgementally) introduce the example. After that, I will turn to three problems of Kiparsky's account. The first one is the question of which dialects he covered. This is not clear from his paper, to the extent that a definite answer cannot be reached. Next I will turn to the two rules he proposed (umlaut and lowering), and show that neither of them is fit to properly account for the data (let alone explain it), and therefore both rules have to be dismissed. To cap it all, I will also provide evidence (from Robinson 1976) that the ordering proposed by Kiparsky makes wrong predictions for the dialects of Schaffhausen.

I will conclude that it is pointless to discuss the ordering of rules that are inappropriate for a given set of data. The example at hand does not in any way support the view that rule ordering is necessary in phonology. A piece of evidence that matches the strength of Bromberger & Halle's bold statement about why phonology is different is still pending. Until brought forth, it is safe to assume the null-hypothesis: phonology and syntax are largely parallel.

¹ According to Bermúdez-Otero & Honeybone (2006), OT is a rule free framework. This does not stop Mascaró (2011) from showing that at least one flavour of OT (stratal OT) is equivalent to (cyclic) rule ordering.

² cf. Kaye (1990, 2012) for a summary of previous accounts, more data and a new take on this very famous example.

2. Kiparsky: umlaut and lowering in Kesswil and Schaffhausen

According to Kiparsky (1968:178–179), microvariation between two German dialects of North-Eastern Switzerland can only be explained if the order in which certain rules apply is different in these two dialects. The ordering of the two rules is crucial for this example, and therefore rule ordering is deemed essential to phonology. The rules in question are lowering (an *o* is lowered to *ɔ* if it is followed by a coronal obstruent or *r*) and umlaut (a vowel is fronted in the relevant context).³ The observation that sparked this claim is the following: the plural of *pokə* ‘arc’ is *pøkə* in both Kesswil and the relevant dialects of Schaffhausen. But the plural of *pətə* ‘floor’ differs: it is *pətə* (with closed *ə*) for the Schaffhausen dialects, but *pætə* (with open *æ*) in Kesswil. This is where rule ordering comes in: Kiparsky poses the same underlying forms for both dialects: *pokə* and *pətə*. In the Schaffhausen dialects, umlaut applies first. The *o*’s of both underlying forms are umlauted in the plural, which results in *pøkə* and *pətə*. Lowering would apply next, but neither form contains a licit input for this rule: it is only *o* that is lowered, never *ə*.⁴ The resulting surface forms are thus *pøkə* and *pətə*.

In Kesswil, the rules apply in a different order, and lowering takes place first. The *o* in underlying *pokə* is not affected, as it is not in a lowering context. The *o* of underlying *pətə* is lowered, because it is followed by *t*, a coronal obstruent. Hence the inputs for the next rule are *pøkə* and *pətə*. Umlaut applies next, and it applies to both forms. This leaves us with *pøkə* and *pætə* as surface forms.

In the singular, there is no umlaut. Lowering is therefore the only rule that applies, which leaves us with *pokə* and *pətə* for both the dialects of Schaffhausen and Kesswil, regardless of the order of the rules.

The ordering of the rules and various stages of derivation as proposed by Kiparsky (1968:178–179) are summarised in (1) below.

(1)a. Schaffhausen

	Singular	Plural	Singular	Plural
underlying	<i>pokə</i>	<i>pokə+PL</i>	<i>pətə</i>	<i>pətə+PL</i>
umlaut	–	<i>pøkə</i>	–	<i>pətə</i>
lowering	–	–	<i>pətə</i>	–
surface	<i>pokə</i>	<i>pøkə</i>	<i>pətə</i>	<i>pətə</i>

b. Kesswil

	Singular	Plural	Singular	Plural
underlying	<i>pokə</i>	<i>pokə+ PL</i>	<i>pətə</i>	<i>pətə+ PL</i>
lowering	–	–	<i>pətə</i>	<i>pətə</i>
umlaut	–	<i>pøkə</i>	–	<i>pætə</i>
surface	<i>pokə</i>	<i>pøkə</i>	<i>pətə</i>	<i>pætə</i>

Before I start isolating the problems with this apparent proof for the existence of rule ordering, I will need to clarify which dialects Kiparsky is talking about.

³ See sections 0 and 0 for a more formal rule format.

⁴ As evidence for this Kiparsky names examples like *p:lötsli* ‘suddenly’ or *fröff* ‘frog’ which contain underlying *ö* but are not lowered in either dialect.

3. Clarification: the dialect of Schaffhausen

Kiparsky's example is concerned with two German dialects of North-Eastern Switzerland. One of them is the Upper Thurgovian dialect spoken in the village of Kesswil as described in Enderlin (1913). Although Enderlin reports some differences between the dialect of the older (his main source) and that of the younger generation, it is a reasonably homogeneous dialect. This is the easy case. The other dialect is more difficult to pin-point. As a source, Kiparsky used Wanner (1941) who treated the dialects of 36 municipalities within the canton of Schaffhausen – he only excluded the city of Schaffhausen and the town Neuhausen. The variety might seem surprising considering the small area of the canton of Schaffhausen (289 km²). However, if we consider that the book was actually compiled, written, and almost ready for publication in 1922, when the author (Georg Wanner) died, but only published in 1941 by the author's son, Hans Wanner, it becomes clear that the data comes from 'a time when each town, village, and hamlet had their own telltale features' (Kraehenmann 2003:3). The large variation is thus to be expected.

The following questions will have to be answered: did Kiparsky refer to one single dialect or several dialects? To which one(s) of the 36 dialects did he refer? If he referred to more than one dialect, can they be treated as a super-dialect with only minor variation between the sub-dialects?

Let me quote the complete list of phrases Kiparsky (1968:176) uses to specify the dialect(s):

a. to introduce his data sample:

'Compare, in the Kanton of Schaffhausen'

b. to summarise his account of the data introduced above:

'This is the situation in some dialects on the northern fringe of Switzerland.'

c. to move to the discussion of the Kesswil dialect:

'I will take a dialect which in all relevant respects is identical to that of the Schaffhausen area.'

These three phrases are not precise about which dialect Kiparsky is referring to. 0a. suggests that the data is valid for the entire canton of Schaffhausen. 0b. suggests that there are several dialects for which the data and their account fits, but it is not clear which dialects those are. They are not necessarily confined to within the canton of Schaffhausen. 0c. suggests only one dialect that is spoken in the area of Schaffhausen – it is not clear, however, whether this is the canton or the city of Schaffhausen.

I am not aware of others acknowledging this problem. But it is obvious from various quotes of Kiparsky's paper that many have actually misunderstood which dialect(s) Kiparsky was referring to: Koutsoudas et al. (1974) take it to mean the dialect of the city of Schaffhausen and, as a consequence, use a different source of data for their alternative approach (Stickelberger 1881). Needless to say, their approach does not hold for the dialect(s) Kiparsky actually referred to. Kenstowicz (1996:22) refers to this dialect as 'the Schaffhausen dialect', which is just as imprecise as the original – one can only speculate as to whether he was aware of the inaccuracy of this term or not. Robinson (1976:149) speaks of the 'dialect of Schaffhausen' while summarising Kiparsky's approach. Later in the course of the paper he makes a clear distinction between several dialects of the canton, but he does not attempt to identify which dialects Kiparsky actually referred to. His paper tentatively suggests that he took it to mean all dialects of the canton of Schaffhausen.

The fact that the dialect(s) under scrutiny were misunderstood by so many linguists is a clear indicator that the problem lies with the original paper. Although it contains no information that is wrong, it definitely contains too little information to identify the dialects in question. The best I can do to identify the dialect(s) is make an educated guess, as the information provided by Kiparsky is rather meagre. Out of the 36 dialects Wanner (1941) distinguishes for the canton of Schaffhausen, the ones spoken in the following 17 municipalities share the distribution of *o* and *ɔ* as described by Kiparsky: Altorf, Barga, Barzheim, Beggigen, Beringen, Bibern, Büttenhardt, Gächlingen, Guntmadingen, Hofen, Lohn, Löhningen, Oberhallau, Opfertshofen, Schleithem, Siblingen, and Thayngen. The remaining 19 dialects show a different distribution. However, the fact that *o* and *ɔ* are distributed in the same way does not make these 17 dialects a homogeneous group. They differ in a variety of other respects. It must be assumed that Kiparsky referred to one or more (possibly even all) of these dialects, but we can neither know how many of them, nor which one(s) exactly.

I will now turn to more substantial problems: the two rules.

4. The umlaut rule

I will tackle the lowering rule in the following section, and first take a closer look at the umlaut rule. There are several problems with the umlaut rule, I will treat the rule from left to right, meaning that I will first discuss the part to the left of the slash (the phonological description), and then the part to the right of the slash, the context.

The first problem, however, is a general one. Kiparsky does not give a rule explicitly for Swiss German umlaut during the discussion of the relevant data. Instead, he refers to a rule he has proposed earlier in the same paper – during the discussion of umlaut in the Low German dialect of Prignitz. The problem with this is that Lower German (as exemplified by the dialect of Prignitz) and Upper German (to which the Swiss German dialects belong) are at opposite ends of the dialectal continuum. Maybe it is the notion of dialects that causes the confusion: the ‘dialect of Prignitz’ and the ‘dialect of Kesswil’ or ‘dialect of Schaffhausen’ (whichever dialect that latter is) are different linguistic systems. There is no reason to assume that a rule that fits one of these systems automatically fits the other ones as well. This becomes even more obvious under the assumption (as subscribed to by Kiparsky) that umlaut in today’s dialects has evolved from umlaut in an historically older, common language. It is rather unlikely that it should have evolved exactly parallel and to the same degree at two opposite ends of the dialectal continuum.

The rule as proposed for the dialect of Prignitz is the following:

$V \rightarrow [-\text{back}] / \dots$

As I have mentioned before I will break this rule apart at the slash and look at its two halves separately.

4.1. The phonological description of the rule

The term umlaut is used to describe a set of changes that is fairly well-known. A rule by the same name is thus expected to account for all of these changes. Consider the following set of

words in singular and plural.⁵ The vowel of the plural is different from the vowel in the singular, it is said to be umlauted:

Singular	Plural	Gloss
hant	hent	'hand'
volf	vølf	'wolf'
xnɔpf	xnœpf	'button'
hunt	hynt	'dog'
paum	pɔim	'tree'

The changes that are subsumed under the term umlaut are the following (both long and short vowels can be umlauted):

a → ε, a: → ε:
 o → ø, o: → ø:
 ɔ → œ, ɔ: → œ:
 u → y, u: → y:
 au → ɔi

Kiparsky's rule states that any vowel will become [-back] in the context to be discussed below. The first four changes, namely $a \rightarrow \varepsilon$, $o \rightarrow \emptyset$, $\text{ɔ} \rightarrow \text{œ}$, $u \rightarrow y$, can indeed be described as a fronting (or un-backing) of the vowel, and umlaut has often been described in this way. But the last line in 0 above cannot be explained in the same manner. ɔi cannot be described as a 'less back' or 'more front' version of au . For Standard German umlaut, which is similar in many respects to umlaut in the Swiss German dialects under discussion, Wiese (1996:122, based on van Lessen Kloecke 1982 and Hall 1992) has proposed a solution to this problem by giving the umlauted version of au as ɔy . The claim is that the u part of au is umlauted to y , while an independent rule takes care of the subsequent rounding of a to ɔ before y (cf. 0 below).

underlying	umlaut	rounding
	u → y	a → ɔ / __y
au	ay	ɔy

This solution, although frequently adopted, might fit the theory nicely, but it is useless because it does not fit the facts – neither for Standard German nor for the dialects under discussion here. The umlaut of au is not ɔy , but ɔi as the analysis of recordings readily shows.⁶

Before jumping to any conclusions, let us examine the context of the rule.

4.2. The context of the rule

Let me repeat Kiparsky's umlaut rule for convenience:

⁵ These data are from my native dialect, but the relevant facts are true across all dialects of north-eastern Switzerland.

⁶ A further question is why ai is never umlauted (e.g. to ei). A possible reason could be that the i blocks umlaut. I will not pursue this question here.

V → [-back] / ...

The most noticeable fact about the context of this rule is its absence. Kiparsky (1968:176) states: 'I leave open here the question of what exactly the environment of umlauting in modern German is, which is irrelevant for present purposes.' As irrelevant as the context of this rule might seem to Kiparsky, it is very important for two reasons: a more general one and one specific to this rule.

The general problem is that a rule without a context is not testable, and therefore also not falsifiable. There is simply no way of seeing whether it does or does not apply where it is supposed to apply, because it does not say where it should apply in the first place.

There is an additional reason why the context is important in the case of umlaut specifically: contrary to what Kiparsky's example from Swiss German (and other, similar examples from the literature) suggests, umlaut is not a phonological rule. It is impossible to describe the context in which umlaut occurs in phonological terms. Kiparsky does not mention this, but contrarily claims that the rule given in 0 and repeated in 0 above is a simplification of the rule he proposed for Old High German, quoted here as 0 (Kiparsky 1968:176):

$$\left(\begin{array}{c} V \\ \langle \text{-long} \rangle \end{array} \right) \rightarrow \left(\begin{array}{c} \text{back} \\ \langle \text{-low} \rangle \end{array} \right) / _ _ C0i$$

The parts to the left of the slash (the phonological description) in 0 and 0 are obviously simplified vis-à-vis those of rule 0: the angled brackets are no longer present. But simplification suggests that the context be simplified as well, or at least not substantially more complex. However, if we want to see umlaut as a process, it will be triggered by certain morphological contexts. It is highly dubious how morphological contexts are supposed to trigger phonological rules in the first place. But this problem notwithstanding, even the morphological context would be insufficient to define where umlaut applies: the same morphological context (such as plural or diminutive) is accompanied by umlaut in one word, but not in another. Take the plurals of the words *hunt* 'dog' and *stunt* 'hour' as an example: they are *hynt* (with umlaut) and *stunt* (without umlaut) respectively in most dialects of Swiss German.

It is impossible to define the context of this rule – be it in morphological or phonological terms – because its occurrence is unpredictable. In addition, the changes that are called umlaut cannot be captured by a rule, as they involve an arbitrary change (in the case of *au* → *ɔi*). This leads to the conclusion that the umlaut rule as proposed by Kiparsky has to be dismissed. The problems discussed above are not superficial ones, and thus other rules for umlaut would not fare much better. An alternative approach is to treat a form like *hynt* not as a derivation from *hunt*, but as a distinct lexical item, very much like in the case of suppletion (cf. Pöchtrager & Kaye 2011 and Sutter 2012 for more arguments in favour of this view).

5. The lowering rule

Let us now turn to lowering. Kiparsky (1968:178) proposes the following rule:

$$\left(\begin{array}{c} \text{V} \\ -\text{high} \\ +\text{back} \end{array} \right) \rightarrow [+low] / \text{---} \left(\begin{array}{c} +\text{consonantal} \\ -\text{grave} \\ -\text{lateral} \end{array} \right)$$

Robinson (1976:148) remarked that this rule is problematic for two reasons: Firstly, it would apply to both long and short *o*, which is not true – only short *o* is ever lowered. Secondly, the nasal *n* would act as a trigger, which is not true either. He proposes a new version of the rule that excludes long vowels from possible inputs and *n* from the context. His rule (in 0) uses the feature [+cor] instead of [-grave], as has become common practice after Chomsky and Halle (1968).

$$\left(\begin{array}{c} \text{V} \\ -\text{high} \\ +\text{back} \\ -\text{long} \end{array} \right) \rightarrow [+low] / \text{---} \left(\begin{array}{c} +\text{consonantal} \\ +\text{cor} \\ -\text{nasal} \\ -\text{lateral} \end{array} \right)$$

These observations are true, but the changes are cosmetic at best. The real problems lie deeper, the major ones being the question of natural class in the context of the rule, and the general validity of the rule. Let me explain in more detail.

Firstly, lowering takes place before coronal obstruents and *r*. This is a perfectly valid natural class, as long as *r* is coronal in the dialects in question. If the *r* is uvular, however, then the context of the rule does not contain a natural class, which would weaken Kiparsky's claim.

According to Enderlin (1913:8), *r* is indeed coronal for most speakers in Kesswil. The situation in the canton of Schaffhausen is a bit more complicated. Wanner (1941:9-10) states that '[d]er *r*-Laut ist bald Zungenspitzen-*r*, bald Zäpfchen-*r*. Letzteres scheint umsich zu greifen.' (the *r*-sound is sometimes a coronal *r*, sometimes an uvular *r*. The latter seems to be on the rise.) Of the dialects Kiparsky could potentially have included (cf. section 0), Wanner specifically states that Schleithem and Thayngen have uvular *r*, while Lohn and Oberhallau have coronal *r*. He does not give specifics for the other dialects.

Secondly, according to Kiparsky's account we expect to find no sequence of a closed *o* followed by either a coronal obstruent or *r*, because all closed *o*'s should be lowered in this context. Although the data in the handbooks (Enderlin 1913 and Wanner 1941) is rather limited, their format make it rather easy to find examples that contradict the generalisation of the rule. Both handbooks follow the same structure: they are little more than an inventory of sound correspondences between Middle High German and the dialect under scrutiny.⁷ Besides generalisations about sound changes they often also provide a number of words that do not follow the general pattern. One of these changes includes old *o* going to *ɔ* in the modern dialects. For the dialects listed in section 0, this happened before coronal obstruents and *r*. Wanner (1941:28) lists the following exceptions:

⁷ Wanner (1941) additionally contains a chapter on morphology which does not concern us here.

ʃot:ə	‘whey’
kof:ə	‘mouth, slang’
vot:	‘want-3RD.SG’
vot:ʃt	‘want-2ND.SG’
otər	‘or’
p:ot:s	‘interjection’
hot:	‘command for horses: turn right’

For Kesswil, Enderlin (1913:33) lists the following exceptions:

prosmə	‘crumb’
otər	‘or’
hot:	‘command for horses: turn right’

In a later section of Enderlin’s book, there are more examples of closed *o* in lowering environment. Some of them are listed in 0 below (Enderlin 1913:36):

vorm	‘worm’
sorə	‘to buzz’
nos:	‘nut’
proʃt	‘chest’
sotlə	‘to botch’
ʃnotər	‘snot’
kot:ərə	‘bottle’

A better knowledge of these dialects would probably reveal more examples. Unfortunately we are not able to obtain more data from the dialects mentioned, as they have changed considerably over the past almost one hundred years since the data was collected. Yet, there is hope. The dialects of Kesswil and Schaffhausen belong to a group of dialects called Ostschweizerdeutsch (East Swiss German), together with Lower Thurgovian (Kesswil belongs in the Upper Thurgovian group), St. Gallen, Toggenburg and Appenzell (cf. e.g. Kraehenmann 2003). Interestingly, the areas where the Upper Thurgovian and Schaffhausen dialects are spoken are not adjacent (as Kiparsky claims, 1968:178), but separated by the Lower Thurgovian area. If the dialects of Kesswil and some parts of the canton of Schaffhausen are similar enough to be compared, it is reasonable to suggest that data from a dialect that is adjacent to both areas could be used as a support. My native dialect belongs to the Lower Thurgovian dialect group, it is spoken in the area between Kesswil and the canton of Schaffhausen and therefore adjacent to both areas.

In my dialect, most of the Middle High German *o*’s have been lowered to *ɔ* in the context of coronal obstruents as well (cf. 0), but the following data supports my claim above: there are many more examples with closed *o* in the same context. A selection is listed in 0. Both *o* and *ɔ* co-occur with both coronal and non-coronal obstruents.

a. oraŋʃ	‘orange (adj)’	b. ɔrtə	‘order’
ot:ɛ	‘otter’	kɔt:ə	‘godmother’
blos	‘just’	hɔsə	‘trousers’
ote	‘or’	jɔtlə	‘to yodel’
oftə	‘east’	p:ɔftə	‘to shop’

While the first problem (the natural class of the context) only weakens Kiparsky’s account, the second one proves it wrong. The lowering rule is not capable of capturing the data, it makes predictions that contradict the data. The rule is thus factually wrong.

The fact that *ɔ* is a relatively recent addition to the system of these dialects and that it has developed from Middle High German *o* is irrelevant for the modelling of the system of today’s language. As I have explained in section 0, language change is not to be confused with synchronic processes in the language. Deriving *ɔ* from *o* synchronically simply because it developed from *o* diachronically makes no sense. I propose, in accordance with Moulton (1960:173, fn 15) and Kraehenmann (2003:49), that words lexically contain either *o* or *ɔ*. The only environment that could turn out to actively lower preceding vowels (not restricted to *o*) is *r*. I have to leave this question to further research.

6. Ordering the rules

I have shown that both umlaut and lowering have to be dismissed as rules. It is pointless to discuss the ordering of rules that demonstrably do not exist. But let us pretend for a second that there was nothing wrong with the rules. Even in that hypothetical case, there is something wrong with the ordering.

Robinson (1976) found that the ordering of the two rules as proposed by Kiparsky makes wrong predictions for most dialects of the canton of Schaffhausen. According to Kiparsky’s account, whenever a surface form without umlaut contains either *o* or *ɔ*, the corresponding surface form with umlaut is expected to have *ø*, not *æ*. This is because, according to his account, umlaut applies to the underlying *o* before lowering, and once umlauted the vowel can no longer be subject to lowering (cf. section 0). The data tell a different story: the umlaut of the sequence *ɔr* is not *ør* as predicted, but *ær*. This is not true for all dialects of the canton, but the dialects Kiparsky could potentially have referred to (cf. section 0) form a proper subset of the ones with open *ær*.

7. Conclusion

After trying (with questionable success) to define which dialects Kiparsky actually referred to in his example, I have scrutinised both rules, umlaut and lowering. As it turned out, neither rule appropriately covers the data. The umlaut rule is not capable of explaining the change from *au* to *ɔi*. In addition, a formalisation of the context is impossible. As an alternative I have suggested to treat words with umlaut as distinct lexical forms.

The lowering rule was shown to be incapable of covering the data. It makes predictions that are not matched by the data, and has therefore to be dismissed as wrong. There is no lowering rule in these dialects, instead, words lexically contain either *o* or *ɔ*.

Supposing that there still were rule ordering, the ordering proposed would make wrong predictions for the Schaffhausen dialect(s).

As the conditional in the previous sentence indicated, this question is moot. Neither of the rules is tenable, consequently, there is nothing to be ordered.

This is a hard blow for Bromberger and Halle's claim: after their only piece of evidence (Canadian Raising) was debunked by Kaye (1990, 2012), another, widely-quoted example has been shown to be false. A perusal of other cases that seem to rely on the ordering of rules shows that usually the data are misinterpreted or incomplete (Pöchtrager & Kaye 2011). There is no evidence for the necessity of rule ordering, and consequently no reason why phonology should be fundamentally different from syntax.

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Regula Sutter
 Department of Theoretical Linguistics
 Eötvös Loránd University, Budapest
Regula.sutter@gmail.com

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Subparts of contrastive topics and their relevance for the syntax–information structure interface

Marta Wierzba

This paper presents two experimentally confirmed observations about contrastive topics (CTs) in German: subparts of CTs can appear in the left periphery, and if a wide contrastive topic contains both a direct object and a directional PP, then only fronting of the DP is compatible with a wide VP contrast interpretation. These observations are reminiscent of the data presented by Fanselow & Lenertová (2011) about subparts of focus, who use them to argue against cartographic approaches that predict a one to one relation between fronted phrases and IS categories. My claim is that the CT data basically support this argument against cartographic approaches, but that it can not be subsumed under Fanselow & Lenertová's analysis for subpart of focus fronting, because their model predicts that movement of contrastively accented elements should be less restricted than it is in the data. A potential independent reason for this restriction is explored, suggesting that the unrestricted movement of subparts of CTs predicted by Fanselow & Lenertová can after all be observed under the right pragmatic circumstances.

1. Introduction

The main goal of this paper is to present new observations about subparts of contrastive topics in German and to make clear why and how they are relevant for a theoretical issue that is currently controversially discussed, namely the interface between syntax and information structure (IS).

As for the empirical part, I will focus on German dialogues like the following:

- (1) Was hat Peter alles erledigt? 'What has Peter managed to do?'
Das /PÄCKCHEN hat er NICHT\ zur Post gebracht...
the parcel has he not to.the post.office taken...
'He has not taken the parcel to the post office...'

I will present experimental evidence that a dialogue like (1) can be felicitously continued in two different ways: either the fronted constituent with the rising accent 'das Päckchen' is contrasted, or the whole VP 'das Päckchen zur Post bringen'. The second option suggests that a subpart of

a contrastive topic can appear in the left periphery of a German sentence. It will be shown that in this type of sentence, the ‘wide contrast’ reading is possible when the DP object is fronted, but not when the PP object is fronted.

Subparts of another IS category, namely focus, have been presented by Fanselow & Lenertová (2011, henceforth F & L) to argue that no IS features are directly encoded in syntax. This approach is directly opposed to the so-called cartographic approach, according to which movement to the left periphery is triggered by formal IS-related features. I will discuss the consequences of the new empirical data for both theories. On the one hand, I will support F & L’s argumentation by adding more evidence that subparts of IS categories can appear in the left periphery, which is difficult to implement in cartographic models. On the other hand, I will show that the subpart of contrastive topic data does not follow as straightforwardly from F & L’s model as the subpart of focus data. Based on certain assumptions about cyclic linearization and accentuation, F & L correctly predict that only the leftmost accented constituent of a wide focus can be fronted, but this explanation cannot be extended to contrastive topics. In F & L’s model, movement of contrastively accented elements is predicted to be unrestricted; consequently, any subpart of a wide contrastive topic should be able to be fronted, which apparently contradicts the data mentioned above (only a fronted direct object is compatible with a wide contrast reading).

In sum, the experimental results imply that cartographic approaches undergenerate (for them, it is problematic that subparts of CT can be fronted at all), while F & L’s model overgenerates (it does not capture that subpart of CT fronting is restricted). In principle, overgeneration is not necessarily a problem, if it can be shown that the observed restrictions are due to an independent reason. I will explore one such potential additional factor having to do with properties not of the fronted phrases, but the ones which stay in situ. The experimental items were recorded in such a way that everything except the two prominent accents on the contrastive topic and on the focus (indicated by ‘/’ and ‘\’ in (1)) were deaccented. I will present additional examples indicating that deaccentuation of the object that stays in situ is licensed in the DP-fronting case, but not in the PP-fronting case, which could independently account for the difference in acceptability. If this factor is controlled for, F & L’s prediction that any subpart of a contrastive topic can be fronted is indeed borne out intuitively, although the experimental confirmation remains for future work.

The paper is structured as follows. In section 2, I introduce the relevant theoretical background concerning the syntax-information structure interface and contrastive topics. Then I present my observations about subparts of contrastive topics in section 3 and make clear why they are relevant for the discussion. In section 4, I present the results of a rating experiment that confirms my observations and discuss their consequences for the different theoretical approaches. In view of the conclusion that neither of them can account for the full range of data, possible solutions such as a hybrid model as suggested by Frey (2005), and an explanation based on the potential confounding factor mentioned above, are examined in 5. Section 6 summarizes the conclusions and points out open questions.

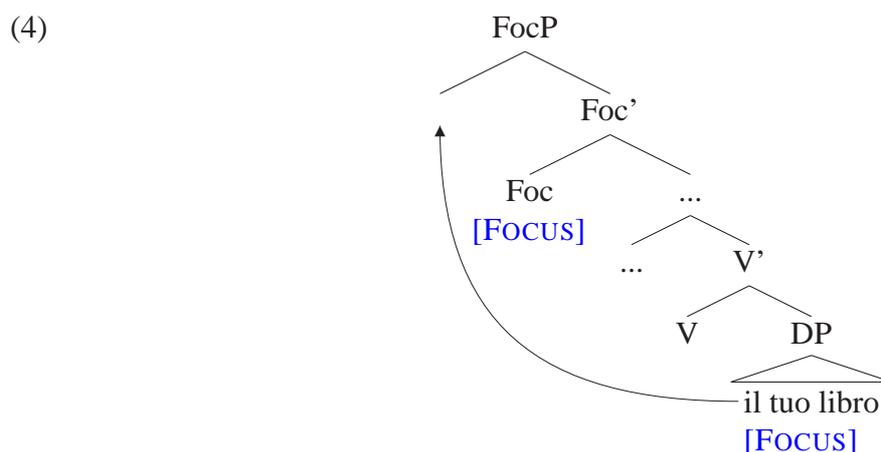
2. Theoretical Background

2.1. Syntax / information structure interface

In many languages, movement to the left periphery seems to be correlated with information structural notions. For example, in Italian there are several different types of movement to the left periphery, and one of these movement types seems to affect phrases with a topic interpretation (involving an intonational break after the fronted constituent and a resumptive clitic) and another one focused constituents (without intonational break and clitic; examples from Rizzi (1997)):

- (2) Clitic left dislocation (topic interpretation):
 Il tuo libro, lo ho letto.
 the your book, it I.have read
 ‘As for your book, I read it.’
- (3) Fronting without clitic (contrastive focus interpretation):
 Il tuo libro ho letto.
 the your book I.have read
 ‘I read YOUR BOOK.’

Rizzi (1997) suggested to account for this by directly encoding IS features in syntax in terms of syntactic features. Based on word order data from Italian and other languages, Rizzi proposes a detailed analysis of the left periphery of a sentence, providing specific positions for specific IS categories. A constituent bearing a focus feature must move to a designated position in the left periphery, the specifier of a FocP, for feature checking reasons, and a constituent with a topic feature must analogously move to the specifier of a TopP. The following tree illustrates the idea, leaving aside functional projections that are not relevant here:



This general idea, referred to as the cartographic approach, was adopted for other languages. An example of a partly cartographic analysis of German, proposed by Frey (2005), will be discussed in detail at a later point.

A syntactic model that goes one step further and completely abandons cartographic assumptions has been proposed by Fanselow & Lenertová (2011). They argue that movement to the left

periphery is not directly related to information structure. Thus, no IS notions are directly encoded in syntax, an idea that has been labelled the ‘Strong Modularity Hypothesis’ by Horvath (2010) and that is directly opposed to the cartographic approach. According to F & L, movement to the left periphery is not triggered by a feature connected to IS, but by the Edge feature of C. This means that in principle any constituent can move to SpecCP.

There is, however, a certain restriction that has to do with linearization and accenting. F & L adopt the idea of cyclic linearization from Fox & Pesetsky (2005): When a spell-out domain (such as CP) is completed, all constituents in this domain have to be linearized by establishing ordering statements of the form $X > Y$. These statements cannot be changed or removed at a later point, and if a contradictory ordering statement is added, the derivation crashes. F & L complement this account by the assumption that structurally accented elements have to be linearized immediately when they are merged with respect to the structure that already exists at this point. Structural accents are those that are assigned to a sentence in an all-new-context by language-specific rules of prosodic prominence (this default pattern can be overwritten by more specific processes, such as the deaccentuation of given elements, or additional accents for contrasted material). The language-specific parameter which determines whether left or right branches are prosodically more prominent in the default case is one of the motivations for the close link between accents and linearization assumed by F & L; in this sense, linearization is a prerequisite of accentuation: it cannot be decided which branch gets the accent until it is clear which branch is the left or right one, so they have to be linearized immediately.

It follows from these considerations that syntactic movement of structurally accented elements must not cross structural accents. Since the linear order of an accented element relative to all lower elements is determined when it is merged, moving a structurally lower accented element above an accented element would result in a contradiction in the linearization statements.

The main evidence for this comes from a phenomenon that F & L call ‘Subpart of focus fronting’ (SFF) and that they report for many languages, including German:

- (5) Was hat Peter gefangen? ‘What did Peter catch?’
 [Einen Hasen]_i hat Peter *t_i* gefangen.
 a hare has Peter caught
 ‘Peter has caught a hare.’
- (6) Was hat Peter gemacht? ‘What did Peter do?’
 [Einen Hasen]_i hat Peter *t_i* gefangen.
 a hare has Peter caught
 ‘Peter has caught a hare.’
- (7) Was ist passiert? ‘What happened?’
 #[Einen Hasen]_i hat Peter *t_i* gefangen.
 a hare has Peter caught
 ‘Peter has caught a hare.’

In (5), the fronted constituent corresponds exactly to the *wh*-word in the question, i.e. to the focus of the sentence. In (6), the fronted constituent corresponds to a *subpart* of the focus, which in this case is the whole VP. This is problematic for accounts based on information structural feature checking because they predict that the whole constituent bearing the relevant IS feature

should move; a subpart should not be able to check the feature. (7) shows that the predictions concerning accent crossing are borne out: in this all-new-context, ‘Peter’ is not mentioned in the question in contrast to the other two examples, and is therefore not given. Non-given elements (with some exceptions, e.g. functional categories) have to receive a structural accent in German, and that is why it is ungrammatical to move *einen Hasen* ‘a hare’ across *Peter* in this case. More generally, it follows from the model that only the leftmost structurally accented constituent of the focus can move to the left periphery. Under this view, the relation between syntax and IS is an indirect one: IS is related to prosody/accentuation, and accents are relevant in syntax.

In the remainder of this paper, I will add some new data about subparts of another IS category, namely contrastive topics, to this discussion and show that it is also problematic for analyses involving checking of IS features. I will argue that it does not follow from F & L’s model, but that a confounding factor might be responsible for the mismatch between their predictions and the observed data.

2.2. Contrastive topics

I want to argue that there is an interesting difference between data involving subparts of contrastive topics as opposed to subparts of focus, so it is important to define what I mean by this term. My argumentation and my examples are based on the influential theory developed by Büring (1997, 2003). In this section, I will outline his main ideas.

Büring (2003) defines the IS categories focus and contrastive topic in prosodic terms: In English, contrastive topics are marked by a B-accent (fall-rise accent, i.e. a L*+H pitch accent followed by a L-H% boundary tone; cf. Jackendoff 1972) and foci by an A-accent (falling accent, H* followed by a L-L% boundary tone). For German, a similar accentuation pattern — rising accent for a CT, falling accent for a focus — is usually assumed (cf. Jacobs 1997). A specific property of German is that the rising accent always has to precede the falling accent and that the fundamental frequency F_0 stays at a high level between the two pitch accents, forming a pattern that has been labelled ‘hat contour’ or ‘bridge contour’. Except for these two pitch accents, all the other material in the sentence is prosodically very reduced (for phonetic details, see Féry 1993, Mehlhorn 2001); this property will become important later in this paper. Abstracting away from the phonetic differences between English and German, in this paper I will indicate rising (CT) accents by ‘/’ and falling (focus) accents by ‘\’ for both languages. In example (8), ‘Fred’ is the CT and ‘beans’ is the focus.

(8) /FRED ate the BEANS\.

The goal of Büring’s detailed analysis of the semantic–pragmatic properties of CTs is to be able to predict which CT-focus-sentences can occur in which contexts. The analysis is based on a certain extension of alternative semantics (cf. Rooth 1992) and on a hierarchic model of discourse.

Büring assigns three semantic values to a sentence containing a CT and a focus:

1. Ordinary value: semantic value in any formal, truthconditional, compositional frame-

work; e.g. following von Stechow (1991)):

$[[/FRED \text{ ate the BEANS} \backslash]]^O = \text{set of those worlds in which Fred ate the beans (this expresses a proposition)}$

2. Focus value: for a focused element, it is the set of contextually salient alternatives to it; the focus value of a sentence is a set of propositions, e.g.:

$[[\text{the BEANS} \backslash]]^F = \{[[\text{the beans}]]^O, [[\text{the steak}]]^O, [[\text{the salad}]]^O, \dots\}$

$[[/FRED \text{ ate the BEANS} \backslash]]^F = \{[[\text{Fred ate the beans}]]^O, [[\text{Fred ate the steak}]]^O, [[\text{Fred ate the salad}]]^O, \dots\}$

3. CT value: a set of sets of propositions; calculated for a sentence by taking its focus value (a set of propositions) and replacing the CT-marked constituent in each member of the set, e.g.:

$[[/FRED \text{ ate the BEANS} \backslash]]^{CT} = \{ \{ [[\text{Fred ate the beans}]]^O, [[\text{Fred ate the steak}]]^O, [[\text{Fred ate the salad}]]^O, \dots \}, \{ [[\text{John ate the beans}]]^O, [[\text{John ate the steak}]]^O, [[\text{John ate the salad}]]^O, \dots \}, \{ [[\text{Clara ate the beans}]]^O, [[\text{Clara ate the steak}]]^O, [[\text{Clara ate the salad}]]^O, \dots \}, \dots \}$

A standard idea concerning question semantics is that the semantic value of a question corresponds to the set of possible answers (Hamblin 1973). Under this view, the focus value of a sentence containing a focused constituent is identical to the meaning of a corresponding wh-question that asks about this constituent:

$$(9) \quad [[/FRED \backslash \text{ ate the beans}]]^F = [[\text{Who ate the beans?}]]^O = \{x \text{ ate the beans} \mid x \in D_e\}$$

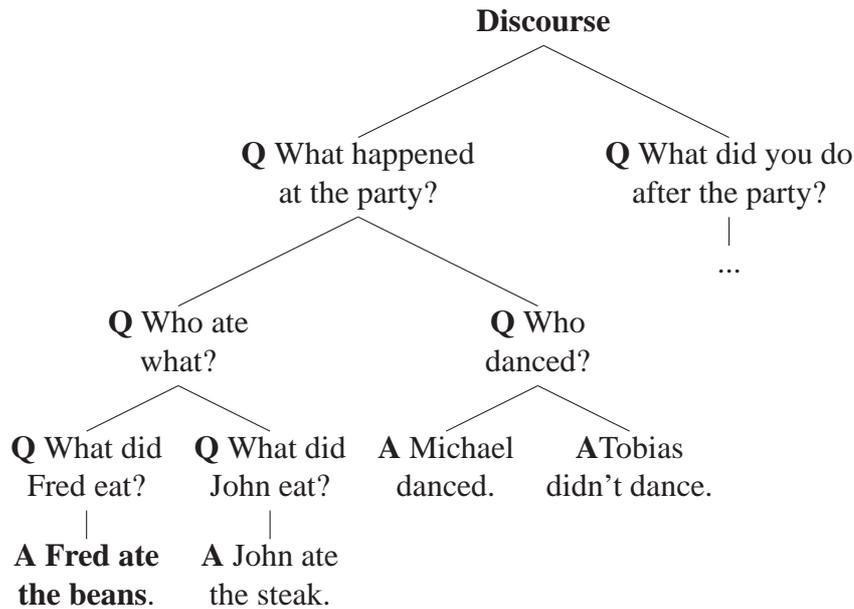
Büring shows that since a CT value is a set of focus values, it can also be regarded a set of questions, e.g.:

$$(10) \quad [[/FRED \text{ ate the BEANS} \backslash]]^{CT} = \{ [[\text{What did Fred eat?}]]^O, [[\text{What did John eat?}]]^O, [[\text{What did Clara eat?}]]^O \dots \} = \{ \{x \text{ ate } y \mid y \in D_e\} \mid x \in D_e \}$$

$$(11) \quad [[/FRED \backslash \text{ ate the /BEANS}]]^{CT} = \{ [[\text{Who ate the beans?}]]^O, [[\text{Who ate the steak?}]]^O, [[\text{Who ate the salad?}]]^O \dots \} = \{ \{x \text{ ate } y \mid x \in D_e\} \mid y \in D_e \}$$

The two examples show that the CT value depends on the position of the B-accent and A-accent: When the accents are swapped, the CT value corresponds to a different set of questions. Büring's key idea is to use this property to characterize the relation between sentences containing CTs and the contexts they occur in. For this purpose he adopts the discourse model of Roberts (1996), according to which a discourse is structured hierarchically by explicit and implicit questions. For example, a discourse in which (11) occurs could be structured like this:

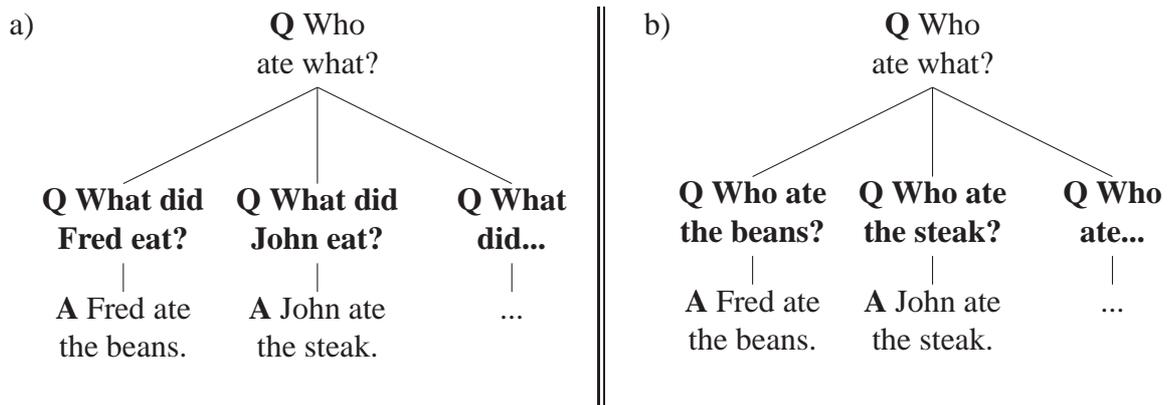
(12)



A sequence of utterances is felicitous if it satisfies certain ‘Congruence principles’, that is, if it can be mapped to a discourse tree in a specific way. The focus-marked constituent has to correspond to the wh-word in the question that is currently under discussion. The CT-marked constituent indicates what the *sisters* of the question under discussion have to be: they have to be members of the CT value.

Thus, taking into account the CT values given above, the sentence ‘/FRED ate the BEANS\’ is compatible with the discourse structure given in (13a), and ‘FRED\ ate the BEANS/’ is compatible with (13b).

(13)



If a CT-focus-utterance is preceded or followed by utterances that cannot be mapped to the type of discourse tree that is indicated by the Focus and CT values, the sequence of utterances is predicted to be infelicitous:

- (14) a. /FRED ate the BEANS\ (...but what did John eat? /...# but who ate the steak?).
- b. FRED\ ate the /BEANS (...# but what did John eat? / ...but who ate the steak?).

In most of Büring's examples, the CT value is calculated based on a DP carrying a B-accent. The question I want to address in the following section is whether the CT value can also be based on bigger constituents containing the accented DP, e.g. on a VP.

3. *Subparts of contrastive topics*

3.1. *Observations*

In this section, I want to point out two properties of German CT-sentences that are relevant for theories of the syntax-IS interface:

1. Subparts of contrastive topics can appear in the German prefield.
2. In sentences with a direct object DP and a directional PP argument, it depends on which of these phrases is fronted whether the whole VP can be contrasted or not.

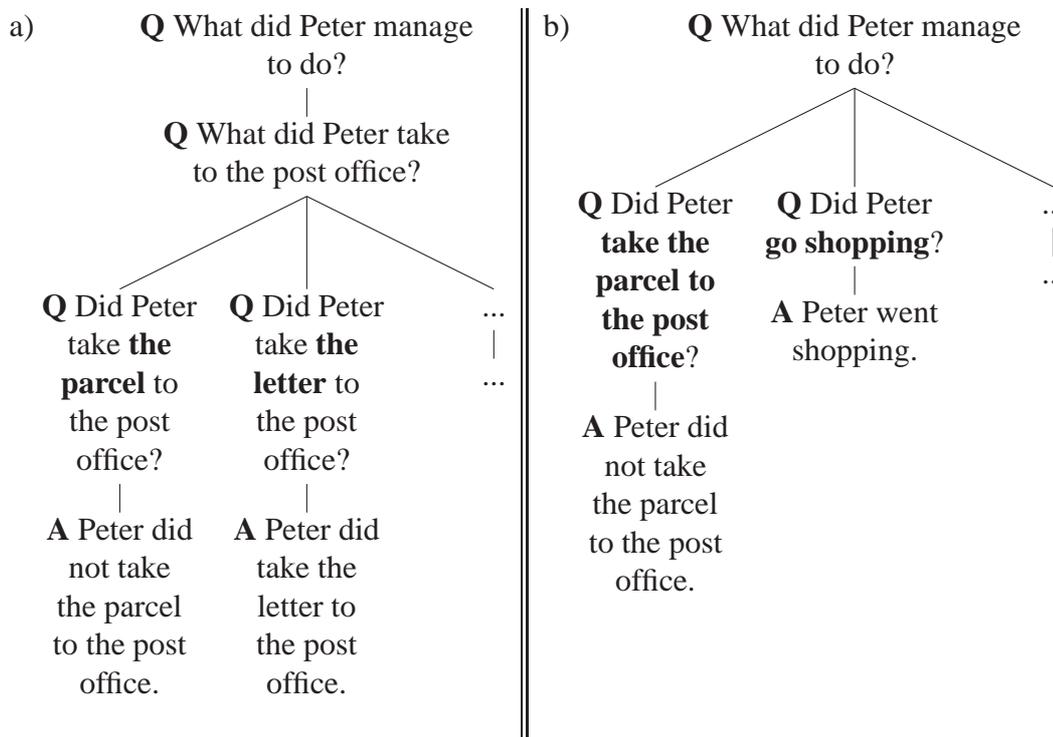
As I showed in section 2, if one follows Büring's (2003) view, the context indicates which category is the CT of a sentence. Let's look at example (1), repeated below as (15), in more detail.

- (15) Was hat Peter alles erledigt? 'What has Peter managed to do?'
 Das [/PÄCKCHEN]_i hat er *t_i* NICHT\ zur Post gebracht...
 the parcel has he not to.the post.office taken...
 'He has not taken the parcel to the post office...'
 a. ...aber wenigstens den Brief. '...but at least the letter.'
 b. ...aber wenigstens hat er eingekauft. '...but at least he went shopping.'

The focus on *nicht* 'not' indicates that the implicit question under discussion is a yes-no-question like 'Did Peter take a parcel to the post office?'. The first type of continuation in (15a) suggests a discourse structure like (16a); the second type of continuation in (15b) suggests a discourse structure like (16b)¹.

¹Note that in this case, the implicit superquestion 'What did Peter take to the post office?' contains only a single wh-word, in contrast to the standard examples in which the superquestion indicated by a contrastive topic usually is a multiple question containing two wh-words. That is a special property of contrastive topic utterances with verum/polarity focus.

(16)



As discussed in the last section, the CT value of a sentence results from substitution of the CT by alternatives to it and has to be congruent with the sisters of the current question. Therefore, the CT corresponds to the unit that varies in these questions (marked by boldface font in (16)). In (16a), this unit is the direct object DP; in (16b), it is the VP. Since the CT-sentence in (15) is compatible with both discourse strategies (both continuations are felicitous), I conclude that in this case, a subpart of a CT is in the prefield: the CT is ‘das Päckchen zur Post bringen’, but only a part of it, namely ‘das Päckchen’ appears in the prefield and carries a rising accent.

It has to be noted that this observation is not new and can be found several times as a side remark in the literature, e.g. in Jacobs (1997:96) and Büring (1997:72–73). Büring proposes that if it is a part of the CT that is fronted, it has to be the ‘topic exponent’ which is calculated like a focus exponent, i.e. it roughly corresponds to the most deeply embedded argument. In what follows I will argue that this generalization is not correct.

The second observation is illustrated by the contrast between (15) and (17):

- (17) Was hat Peter alles erledigt? ‘What has Peter managed to do?’
 [Zur /POST]_i hat er das Paket NICHT\ *t_i* gebracht...
 to.the post.office has he the parcel not taken...
 ‘He has not taken the parcel to the post office...’
 a. ...aber wenigstens den Brief. ‘But at least the letter.’
 b. #...aber wenigstens hat er eingekauft. ‘But at least he went shopping.’

The contrast clearly shows that whether VP-contrast is an available interpretation option depends on which part of the VP is fronted: if the direct object is fronted, both narrow DP contrast

and wide VP contrast are possible, whereas if the PP object is fronted, the sentence is infelicitous in a context indicating VP contrast. This shows that Büring's (1997) prediction is not borne out (under the assumption that the PP object is the most deeply embedded one). In the next section I want to motivate why the two observations are relevant for the syntax–IS interface discussion.

3.2. *Relation to theories of the syntax–IS interface*

As F & L point out, it is difficult to capture the fronting possibility of subparts of IS categories in cartographic approaches. Under the assumption that movement to the left periphery is triggered by feature-checking, it is expected that the whole category that bears this feature (or even a larger constituent in the case of pied piping) should move to the corresponding specifier position (for an extensive discussion, see Fanselow & Lenertová 2011:194–199). If my observations can be confirmed, they constitute additional evidence that this is not always the case.

In F & L's model, on the other hand, accents play an important role. Because of the close link between accentuation and linearization, structural accents must not be crossed. But what about other types of accents?

For F & L, a structural accent is one that is by default assigned to all elements that are not discourse-given or deaccented for other reasons (e.g. because they are functional elements). Contrastive topics are usually contextually given; consequently, they do not receive a structural accent. A contrastive accent can be assigned at any point during the derivation and it does not enforce immediate linearization. As a result, a phrase with such an accent has more freedom of movement — just like an unaccented element, it can both cross and be crossed by other elements, no matter whether they are structurally accented or not, since the order relative to the rest of the structure is not determined directly at merge.

It follows that this model makes different predictions about the behavior of subparts of (non-contrastive) foci and subparts of contrastive topics². As we saw in (7), repeated as (18), in a wide TP-focus the accented subparts of the focus, i.e. the subparts of the TP, cannot cross each other, because they carry structural accents (for a study that confirms this experimentally, see Weskott et al. 2011).

- (18) Was ist passiert? 'What happened?'
 #[Einen Hasen]_i hat Peter *t_i* gefangen.
 a hare has Peter caught
 'Peter has caught a hare.'

In contrast, no part of a contrastive topic in German receives a falling (structural accent). The prediction therefore is that CTs should be able to move to the left periphery without restrictions, i.e. any subpart of a contrastive topic should be able to appear in the left periphery. So it seems that movement of non-structural accents is too unrestricted in Fanselow & Lenertová's model to account directly for my observations. However, in section 5, I will argue that the independent

²The status of contrastive foci in F & L's system is not fully specified; I will assume here that all contrastive elements including contrastive foci only have a contrastive accent and no structural accent.

felicity condition ‘Don’t deaccent non-given elements’ has to be taken into account, too, and that it is possible that the difference in acceptability can be attributed to this confounding factor.

But first, I want to present the results of a rating experiment in order to make sure that my intuitions are shared by other speakers of German. Acceptability judgments about sentences containing contrastive topics are especially difficult to compare because the accentuation pattern has to be taken into account, and sometimes contradictory judgments about the same sentence can be found in the literature if the accentuation is not indicated clearly. So an experimental study which controls for this factor can help to establish a more objective dataset.

3.3. Hypothesis

It is problematic to formulate the first part of my observations (subparts of CTs can appear in the German prefield) as an experimental hypothesis, because it would mean predicting the absence of an effect: a sentence with a fronted subpart of a CT should be equally acceptable in a context indicating wide contrast as in a context indicating narrow contrast.

But taken together with the second observation, the formulation of a positive prediction is possible in the following way:

- Hypothesis H_1 : When we ask native speakers of German to rate CT-focus-sentences with a direct object and a directional PP in two different contexts and with two different word orders, then there is an *interaction* between the two factors (type of contrast, determined by context — ‘narrow’ or ‘wide’ —, and word order — fronted PP or fronted DP).
- The null hypothesis H_0 states the opposite: There is no such interaction.

I will also test whether the interaction goes in the predicted direction: sentences with a fronted PP in a wide contrast context should be rated worse than sentences with a fronted DP in a wide contrast context; both sentences should be fine in a narrow contrast context.

4. Experiment

4.1. Participants

25 students (mainly of linguistics or psychology) participated in the experiment to fulfill curricular requirements. I excluded the results of two participants because they were not native speakers of German, and of one participant because of technical problems during the experimental trial.

4.2. Method and design

The participants’ task was to rate the acceptability of short dialogues consisting of a question and an answer. They were asked to judge on a scale (1–7) how well-formed the answer was and how well it fitted the question. The experimental items and fillers were recorded in advance and

presented auditorily using headphones in randomized order. The stimuli were read by two female students following my instructions concerning the intonation. The total of 64 experimental items was distributed using a latin-square design such that each participant heard 16 experimental items (each item only in one of the conditions), and additionally all participants heard the same 32 fillers. After each audio file, the participants had 3 seconds to give their rating on a questionnaire. Before the trial they were shown 3 examples illustrating the task and 5 training items after which they had the opportunity to ask questions.

The experimental design was 2×2 with the two factors ‘fronted XP’ and ‘type of contrast’ and the dependent variable ‘acceptability rating’.

- Factor 1: Fronted XP

- Level 1: Fronted DP

- Level 2: Fronted PP

- Factor 2: Type of contrast (determined by context)

- Level 1: DP/PP contrast (‘narrow contrast’)

- Level 2: VP contrast (‘wide contrast’)

4.3. Stimuli

I constructed 16 token sets, resulting in a total of 64 experimental items. All items were constructed as a short dialogue between two people. The target sentence in each of them included a three-place predicate with a definite direct object and a prepositional argument, e.g. *das Päckchen zur Post bringen* ‘to take the parcel to the post office’, *die Filme ins Regal stellen* ‘to put the movies onto the shelf’, etc. In all items there was a prominent rising accent on the fronted phrase and a falling accent on the negation; in between, the fundamental frequency F_0 stayed at a high level. The presence of the hat contour was controlled both perceptually and by checking the visual representation of F_0 using the software Praat.

The factor ‘type of contrast’ was manipulated by changing the context. To make sure that the context forces the interpretation that the whole VP is contrasted, in this condition speaker A states that someone had several tasks and asks which ones he or she managed to complete. Speaker B utters the target sentence (stating that one of the tasks was not completed), followed by a second sentence (stating that at least some other task was completed) which ensures that it cannot be the fronted PP/DP alone that is contrasted. This is achieved by using an intransitive verb (*einkaufen* ‘go shopping’, *aufräumen* ‘tidy up’, *abwaschen* ‘wash the dishes’, *fegen* ‘sweep the floor’) in the second clause. If a transitive verb with an object was used instead, it could still be argued that it’s only the fronted element that is contrasted; e.g. in a context like ‘The parcel, he did not take to the post office, but at least he tidied up his room’ it would be possible that ‘the parcel’ itself is contrasted with ‘the room’ — ‘As for the parcel, the corresponding task was not completed, but as for the room, it was’. This is not possible with the intransitive verbs that were used.

In the ‘narrow contrast’ condition, speaker A asks about the object or the directional PP of a three-place predicate, e.g. in the fronted DP condition, the question is which things Peter took to the post office, making alternative objects salient. In his response, speaker B states that he knows about one object that Peter did *not* take it to the post office, but he does not know what he *did* take there. Thus, he is answering implicit subquestions like ‘Did Peter take X to the post office?’, ‘Did Peter take Y to the post office?’, ..., which ensures that in this context it is the parcel alone that is contrasted with alternative objects (analogously for the ‘fronted PP’ condition, where the PP is contrasted with alternative places). Instead of overtly naming one alternative as in the ‘wide contrast’ condition (e.g. *das Päckchen zur Post bringen* ‘take the parcel to the post office’ vs. *einkaufen* ‘go shopping’), I chose a less explicit continuation in the ‘narrow contrast’ condition. The reason is that it would have been easy to find alternative objects that Peter could have taken to the post office, but for most items it would have been very difficult to find alternative, plausible places where Peter could have taken the parcel, put the vase, thrown the trash, etc., if not to the post office, on the table and into the trash can, respectively. More importantly, in combination with the definiteness of the DP, a continuation of this type would be semantically odd (‘He did not take the parcel to the post office, but at least he took it somewhere else’ does not make much sense in most situations). For this reason, the continuation in this condition is a vague ‘...but I cannot tell you more about this’, and the narrow contrast is established only by the question.

The following token set exemplifies the general form of the items:

- 1.1 Weißt du, was Susi alles zur Post gebracht hat?
 ‘Do you know what Susi took to the post office?’
 Das /PÄCKchen hat sie NICHT\ zur Post gebracht, aber mehr weiß ich
 the parcel has she not to.the post.office taken but more know I
 darüber auch nicht.
 about.that also not
 ‘The parcel she did not take to the post office, but I don’t know more about that either.’
- 1.2 Susi hatte doch einige Aufgaben; weißt du, welche sie erledigt hat?
 ‘Susi had several tasks; do you know which of them she managed to do?’
 Das /PÄCKchen hat sie NICHT\ zur Post gebracht, aber wenigstens hat sie
 the parcel has she not to.the post.office taken but at.least has she
 eingekauft.
 shopped
 ‘The parcel she did not take to the post office, but at least she went shopping.’
- 2.1 Weißt du, wohin Susi das Päckchen gebracht hat?
 ‘Do you know where Susi took the parcel?’
 Zur /POST hat sie das Päckchen NICHT\ gebracht, aber mehr weiß ich
 to.the post.office has she the parcel not taken but more know I
 darüber auch nicht.
 about.that also not
 ‘To the post office she did not take the parcel, but I don’t know more about that either.’
- 2.2 Susi hatte doch einige Aufgaben; weißt du, welche sie erledigt hat?

‘Susi had several tasks; do you know which of them she managed to do?’
 Zur /POST hat sie das Päckchen NICHT\ gebracht, aber wenigstens hat sie
 to.the post.office has she the parcel not taken but at.least has she
 eingekauft.
 shopped
 ‘To the post office she did not take the parcel, but at least she went shopping.’

Among the 32 fillers, 24 contained a corrective or new information focus that matched the wh-question in 50% of the dialogues. 8 fillers were used as a small explorative study of contrastive topic construction similar to the experimental items, but with verum focus on the finite/infinite verb instead of focus on the negation.

4.4. Results

The means and standard deviations are given in Table 1 and visualized as an interaction plot in Figure 1.

	<i>fronted DP</i>	<i>fronted PP</i>
<i>narrow contrast</i>	4.94 (1.53)	5.18 (1.51)
<i>wide contrast</i>	4.47 (1.57)	3.16 (1.65)

Table 1: Means and standard deviations

Tables 2 and 3 show the results of the inferential statistical tests that were carried out, namely two ANOVAs (analyses of variance). The tables show that both factors had a significant effect on the dependent variable, the rating, and that the interaction between the two factors was significant, too.

Effect	F	p	p < .05
type of contrast	15.22742	0.0008205	*
fronted XP	21.06676	0.0001587	*
interaction	51.73362	0.0000004	*

Table 2: ANOVA by subjects

Effect	F	p	p < .05
type of contrast	110.10490	0.00000003	*
fronted XP	23.47271	0.0002142	*
interaction	21.85762	0.0002990	*

Table 3: ANOVA by items

A paired t-test showed that there is a significant difference between the means of the “fronted PP, narrow contrast” condition and the “fronted PP, wide contrast” condition ($p < 0.05$), whereas the means of the two “fronted DP” conditions do not differ significantly ($p > 0.1$).

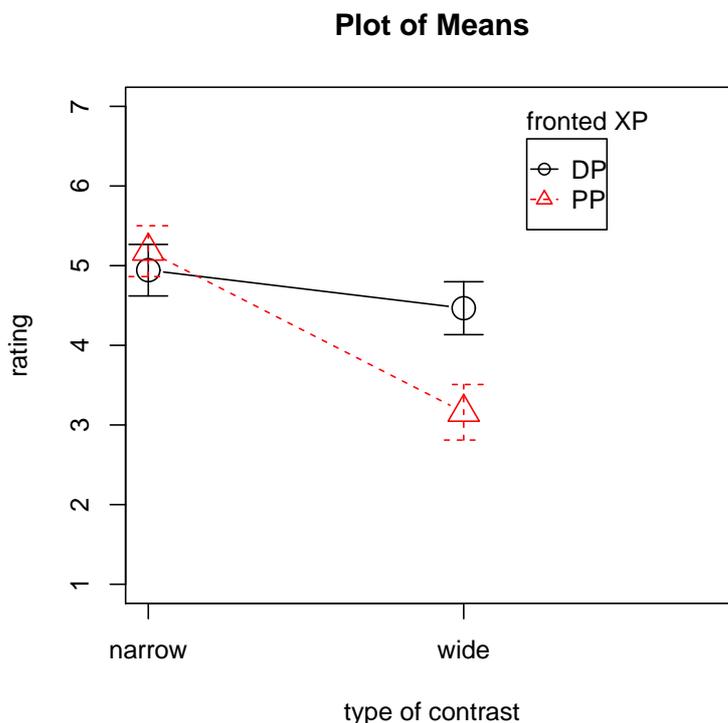


Figure 1: Visualization of the means (bars = 0.95 confidence intervals)

4.5. Discussion

The null hypothesis that the two factors ‘fronted XP’ and ‘type of contrast’ do not interact is to be rejected: a highly significant interaction between the two factors was found. Additionally, the results show that the interaction is of the predicted kind — sentences with a fronted DP are compatible with both types of contrast, narrow DP contrast and wide VP contrast, whereas sentences with a fronted PP were rated significantly lower in the ‘wide contrast’ condition³. I take these results as a confirmation of my two observations: subparts of contrastive topics can appear in the German prefield, and whether the wide contrast interpretation is possible depends on which subpart has been fronted.

One of the theoretical consequences of these findings is that it is problematic to adopt a purely cartographic approach to the left periphery for the German prefield. If we assume that it

³Somewhat surprisingly, the experimental items did not get optimal ratings in any of the conditions; even in the theoretically uncontroversial ‘narrow contrast’ condition, they only got ratings around 5 (on a 7-point scale). In comparison, the mean rating of those fillers in which the focus of the answer matched the wh-word of the question was 6.34. The lower acceptability of sentences containing contrastive topics could be attributed to their higher prosodic and pragmatic markedness as compared to sentences with only one focused and accented element. Another potential explanation is that the responses within the experimental items could have been perceived as less ‘helpful’, because they gave a partial and less straightforward answer to the question than in the filler dialogues. Since the participants were asked to judge how well the answer fitted the question, this factor could also be responsible for the overall lower ratings.

is an information structure related functional projection like FocP, TopP or ContrastP that the phrase moves to, and that this movement is triggered by a corresponding feature, such a model would undergenerate: sentences in which only a part of a contrastive topic is fronted could not be derived.

As for F & L's model, it has been pointed out in the previous section that movement to the prefield is too unrestricted with respect to elements with contrastive accents. Contrastive topics are usually contextually given and thus do not receive a structural accent. Assigning a non-structural, contrastive accent does not force immediate linearization, so these elements can change their position relative to other elements during the derivation, i.e. they can cross and be crossed by other constituents. It follows that in contrast to subparts of focus, where only the leftmost accented element can be fronted, there should be no such limitation for subparts of contrastive topics. Yet, we find a similar restriction in the data.

To sum up, the observations about subparts of focus and subparts of contrastive topics in German are two data sets that look very similar: in both cases, it seems to be the case that only the leftmost subpart can be fronted. One of the data sets, namely that subpart of focus data, directly follows from F & L's assumptions about the relation between structural accentuation and linearization, and it is tempting to extend this analysis to the second data set. But it has been shown that due to the different status of structural and contrastive accents, the contrastive topic data do not follow from the model.

It is important to note that this does not mean that the data is incompatible with F & L's account. If the reasoning outlined so far is correct, their syntactic model overgenerates with respect to subpart of contrastive topic fronting, but the low acceptability of one of the conditions could in principle be due to independent, non-syntactic reasons

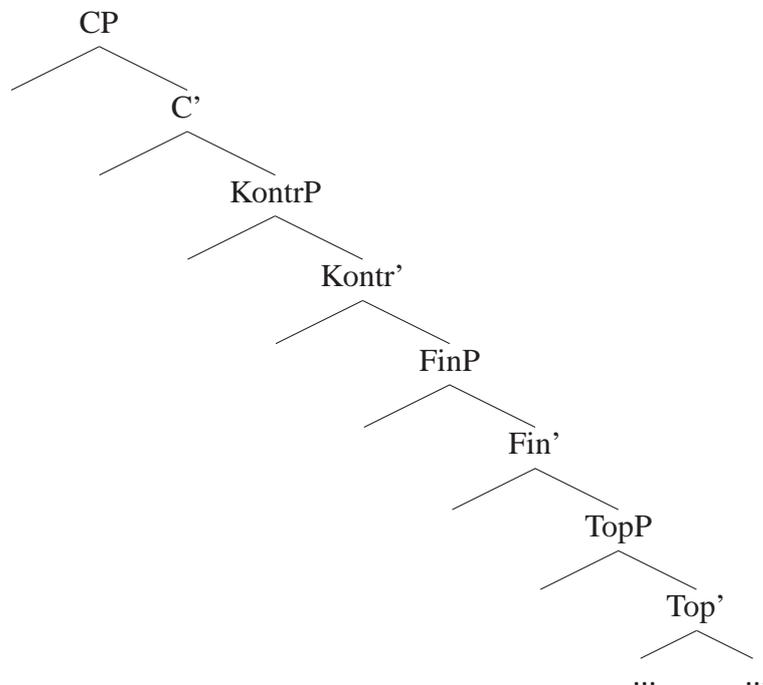
5. Further questions

So far, it has been shown that the experimental results suggest that a cartographic approach to the German prefield undergenerates, and F & L's approach overgenerates. In this section, I will discuss possible solutions for this problem and put some of their additional predictions to a preliminary test using intuitive judgments.

5.1. A hybrid model

Since a purely cartographic approach predicts too strong restrictions on syntactic fronting in German and the restrictions in F & L's model are not strong enough, a combination of the two comes to mind as a potential solution. The approach proposed by Frey (2005) can be seen as an instance of such a hybrid model. Frey assumes that there are different types movement operations that can target the German left periphery, and one of them resembles fronting within the cartographic approach in that the operation is triggered by an IS-related feature (contrast), and another one is triggered by an unspecific EPP feature, completely independent of the IS status of the fronted element, similar to the movement triggered by the Edge feature in C in F & L's approach.

To see the consequences for the model by Frey (2005), a closer look at the syntactic structure that he assumes is necessary. He proposes that the left periphery of German sentences involves the following functional projections:



In a German declarative main clause, the finite verb usually appears in the second position (V2 clause), preceded by exactly one constituent in the prefield position. The part of the structure between the finite verb and the infinite verb (if present) is referred to as the ‘Mittelfeld’. According to Frey, the verb of a V2 clause appears in C, Kontr or Fin, as the head of the phrase with the highest overtly realised specifier. Aboutness topics have to move (at least) to the SpecTopP position in the Mittelfeld (which is immediately above the base position of sentential adverbials). Foci have the option of staying in situ.

There are three options for a constituent to get into the prefield position: 1. It is one of the elements that can be base generated in SpecCP, e.g. a discourse-related adverbial. 2. It has an interpretable Kontrast feature (a contrastive interpretation) and moves to SpecKontrP for feature checking reasons. 3. It is the highest element in the Mittelfeld and moves to SpecFinP because of its EPP feature. This operation is called Formal Fronting and it does not require any specific IS interpretation of the affected element.

The first option is not relevant here. As for the second option, as already briefly discussed, the prediction is that the *whole* constituent carrying a contrastive feature should move, because uninterpretable features cannot be checked by parts of constituents with the corresponding interpretable feature. In contrast, if we assume that it is the third option that happens, the predictions fit the experimental data. In the items, the fronted elements were not the highest element after the finite verb; in all items, there was a subject pronoun *er* ‘he’ or *sie* ‘she’ directly following the verb. But in Frey’s system, weak pronouns in this position do not strictly speaking count as belonging to the Mittelfeld; they can be cliticized to C, so they do not block Formal Fronting of lower elements. This means that in the condition with a fronted DP, this DP could have moved

to the prefield by Formal Fronting. Since this operation does not require the fronted element to have any specific IS interpretation, a sentence of this type could in principle appear in all contexts. In the condition with a fronted PP, the Formal Fronting analysis is not available; thus, within Frey's system, the PP must have an interpretable contrast feature; this means that the PP itself is contrasted, it cannot be only a part of what is contrasted. This correctly predicts that this type of sentence is only compatible with a 'narrow contrast' context, but not with a 'wide contrast' context.

The discussion has shown that it is necessary to assume a syntactic movement operation for German that is not directly linked to information structure to account for the fact the subparts of IS categories can appear in the prefield. The experimental data shows that also subparts of contrastive topics can appear in this position, supporting the argument against purely cartographic approaches. So far, I have argued that the minimality restriction of Frey's Formal Fronting operation (the EPP feature in Fin can only attract the closest element, i.e. the highest element in the Mittelfeld) correctly captures the difference between the 'fronted DP' and 'fronted PP' conditions. The accent crossing restriction in F & L model does not apply to contrastive accents; their movement to the left periphery is syntactically non-restricted. It follows that the acceptability difference found in the experiment cannot have a syntactic reason, but would have to be caused by an independent factor. In this section, I would like to take into account some intuitive acceptability judgments of related examples to get a first idea whether Frey's account can be extended to more data, and whether there is an independent factor that causes the difference between the 'fronted DP' and 'fronted PP' condition.

I will look at further predictions of Frey's model first. Some modifications of the experimental items could serve as a test case for them. One of the predictions is that the 'fronted DP' condition should become unacceptable when the definite DP is replaced by an indefinite one and the adverb *nie* 'never' is used instead of *nicht* 'not'; in this case, the indefinite DP cannot be the highest element of the Mittelfeld because it cannot scramble above the adverbial, as (19) shows; therefore, following Frey (2005), *das Päckchen* 'the parcel' in (20) must be in SpecKontrP, which means that it has a contrastive feature and should not be felicitous in wide contrast contexts.

- (19) a. Ich glaube, dass er noch nie ein Päckchen zur Post gebracht hat.
 I think that he never.before a parcel to.the post.office taken has
 'I think that he has never taken a parcel to the post office before.'
 b. *Ich glaube, dass er [ein Päckchen]_i noch nie *t_i* zur Post gebracht hat.
- (20) Ein /PÄCKCHEN hat er noch NIE zur Post gebracht...
 a parcel has he before never to.the post.office taken

Another prediction is that in the 'fronted PP' condition, the only available interpretation should be that the PP alone is contrasted. The sentence should be infelicitous in a context that indicates that the V' node (zur Post bringen 'take to the post office') is contrasted, as in (21).

- (21) Zur /POST hat er das Päckchen NICHT gebracht, aber wenigstens hat er es
 to.the post.office has he the parcel not taken but at.least has he it

verpackt.

packed

'He did not take the parcel to the post office, but at least he wrapped it.'

Intuitively, the predictions are not borne out. Just as its counterpart with the definite DP, (20) seems to me to be perfectly compatible with both a narrow and a wide contrast interpretation. (21) is also perfectly felicitous for me, indicating that even in the 'fronted PP' condition a bigger unit than the PP can be contrasted. However, these variants have not been tested in my experiment.

5.2. Other non-cartographic approaches

5.3. A potential confound

As for F & L, their prediction is that there should be an additional factor that explains the contrast found in the experiment. A first hint for the existence of a confounding factor comes from (22), which shows the experimental items in an all-new-context:

(22) Was gibt's Neues? 'What's new?'

PETER hat das PÄCKCHEN zur Post/zur POST gebracht.

Peter has the parcel to.the post.office taken.

'Peter has taken the parcel to the post office.'

Usually, in an all-new-context all arguments receive a pitch accent in German; the verb can either be accented or unaccented depending on the phrasal integration of the verb and its immediately preceding argument, an optional process (see Féry & Kügler 2008). In a structure with a direct object and a directional PP, it seems that both arguments can be integrated optionally, so that only one argument has to receive a pitch accent, and the other argument and the verb can be unaccented. This has been noted in the literature: Jacobs (1991) observes that the integration process seems to 'ignore' the directional argument; Rosengren (1989) proposed to explain this fact by considering the directional argument and the verb together as V^0 . Whatever the correct explanation for this accentuation pattern is, it is important that the option of being unaccented only holds for the directional PP, but not for the direct object.

The following line of thought explores the question whether this difference could have had an influence on the experimental results, and it is based on an argument by Büring (2006) against the standard view on focus projection. Büring points out an important confounding factor that had been often overlooked in discussions about examples with wide focus. The standard view on focus projection (as found e.g. in Selkirk 1995) states that the part of a sentence that answers a wh-question has to be 'F-marked'. 'F-marking' is a feature of accented terminal nodes, and in certain syntactic configurations, it can project so that bigger constituents get F-marked. For example, in the standard example (23a), the direct object 'desk' is accented and thus F-marked, and from this position the F-marking can project to the VP and TP level. Consequently, (23a) can be felicitously uttered in contexts like 'What is your neighbour building?' (narrow DP focus), 'What is your neighbor doing?' (VP focus) and 'What's that noise?' (IP focus). In

contrast, (23b) is incompatible with an IP question. Under the theory of focus projection, this is so because the F-marking of an accented element in subject position cannot project to the IP level.

- (23) a. My neighbor is building a DESK.
b. My NEIGHBOR is building a desk.

Büring (2006) argues that these examples merely show that this generalization is true in *all-new-contexts*. However, rules of focus projection are not necessary to account for this. There is an independent factor that confounds the findings, namely the requirement that only given constituents may be deaccented in English. This becomes clear when one looks at examples in which parts of the relevant sentence have been previously mentioned in the discourse, as in (24); here, only the subject is accented, but nevertheless the utterance is felicitous as a reply to an IP question:

- (24) Why did Helen buy bananas?
Because JOHN bought bananas.

Büring shows that under the right circumstances, also accents in other syntactic positions that are supposed to be unable to project under the focus projection theory can license wide focus, e.g. adverbs and indirect objects. So the impression that we get from (23), that objects differ fundamentally in their ability to license a wide focus interpretation, is due to a confounding factor. (23b) is simply infelicitous in an all-new-context because ‘a desk’ is deaccented, but not given. (23a) is felicitous in such a context, at least if both ‘my neighbor’ and ‘a desk’ are accented (the first accent is often neglected in focus projection approaches because only nuclear stress, i.e. the last pitch accent is considered to be relevant).

Simplifying a bit, Büring (2006) assumes that the basic prosody-IS mapping rule is that the focused part of a sentence has to contain a pitch accent. By assumption, it is determined by question-answer congruence what the focused part of a sentence is. The rest of the prosodic realization is determined by rules of default prominence and additionally by the condition that given elements can (but need not) be deaccented.

I think that this reasoning can be applied to my data in a rather straightforward way. I assume that there is a similarly loose condition on prosody-IS mapping: a contrastive topic (which part of the sentence is the contrastive topic is also determined by context, in the way described in section 2) has to contain a rising accent. When I reconsider my experiment design, it is clear that in the VP-contrasting contexts, only the subject was given (‘What did Peter manage to do?’), therefore deaccenting of any other constituent, in particular of the direct object and the PP argument, is not licensed by givenness. Yet, the experimental items were recorded in such a way that everything except for the prominent rising and falling accent was prosodically very reduced. So far, the prediction would be that both word order variants should be bad in this context. However, we saw above that the deaccentuation of the directional PP is licensed even in an all-new-context. This property holds for most items that were used in the experiment. Thus, the factor ‘Is the deaccentuation of the in situ argument licensed?’ directly correlates with the word order factor and could in principle be responsible for the difference in acceptability.

The crucial prediction now is that the fronted PP variant should get considerably more acceptable in a context where deaccenting of the direct object is also licensed. This can be tested by putting it in a context where *das Päckchen* ‘the parcel’ has been previously mentioned, without changing the question under discussion:

- (25) Hatte Peter nicht einige Aufgaben? Warum steht das Päckchen immer noch hier?
 ‘Didn’t Peter have some tasks? Why is the parcel still here?’
 Stimmt, zur /POST hat er das Päckchen immer noch NICHT gebracht, aber
 right to.the post.office has he the parcel still not taken but
 wenigstens war er einkaufen.
 at.least was he shopping
 ‘You’re right, he still hasn’t taken the parcel to the post office, but at least he went shopping.’

Intuitively, in this context the sentence is indeed much more acceptable. Note that it is still the whole VP that is the contrastive topic according to the principle of CT congruence. The question ‘Didn’t Peter have some tasks?’ and the continuation ‘...at least he went shopping’ are only compatible with a discourse structure in which the VP is contrasted⁴.

Moreover, there should be a different possibility to make a ‘fronted PP’ sentence acceptable in a wide contrast context if this idea is correct⁵: if ‘das Päckchen’ is not deaccented, then the prosody-IS mapping rule is not violated either.

- (26) Hatte Peter nicht einige Aufgaben? Was hat er schon alles erledigt?
 ‘Didn’t Peter have some tasks? What did he manage to do?’
 Zur /POST hat er das /PÄCKCHEN NICHT gebracht, aber wenigstens war er
 to.the post.office ha she the parcel not taken but at.least was he
 einkaufen.
 shopping.
 ‘He hasn’t taken the parcel to the post office, but at least he went shopping.’

Again, intuitively, the sentence gets much more acceptable.⁶

Whether these examples can really be fully acceptable under the right circumstances (provided that everything that is deaccented is really licensed to be deaccented) remains to be tested in a study that carefully controls for this factor.

⁴CT congruence is more difficult to control for than question-focus congruence, because it makes reference to implicit subquestions. It is not trivial to exclude the possibility that in an example like (25) there really is no implicit question like ‘What did he do with the parcel?’ or ‘Where did he take the parcel?’, which would mean that the contrastive topic is a smaller unit than the VP. I assume that a sequence of utterances is mapped to the smallest possible discourse tree, which in (25) is one with the (partly implicit) discourse structuring questions ‘What did Peter do?’, ‘Did he take the parcel to the post office?’ / ‘Did he go shopping?’ / ...

⁵I thank Radek Šimík for pointing this prediction out to me.

⁶An interesting observation about (26) is that the pitch accent on *das Päckchen* ‘the parcel’ is realized as a rising accent, although it does not indicate contrast but is an instance of what F & L would call a structural accent. The specific realization probably has to do with the fact that it occurs at a point of the utterance where F₀ is at a high level (in the middle of the hat contour).

6. Summary and Outlook

In this paper, I have tried to add a new aspect to the discussion about the nature of the syntax-information structure interface, namely data about behavior of subparts of contrastive topics. I have shown that they can appear in the German prefield and that they are apparently subject to the same movement restrictions as subparts of focus (only the leftmost subpart can be moved). Yet, I have argued that a careful separate investigation of the two data sets is needed because the new data cannot be subsumed under existing analyses of movement of subparts of IS categories. In particular, it has been shown that the model proposed by Fanselow & Lenertová (2011), which accounts for observations about subparts of focus, does not predict the same behavior for contrastive topics; fronting of their subparts should not be syntactically restricted. However, it has to be noted that a confounding factor could be at play in the experimental results: the differences in acceptability could also be due to conditions on deaccenting. How big the influence of this factor is is an interesting question that remains to be explored in future studies.

As for the competing cartographic approach, the data supports F & L's argument against linking movement to the left periphery directly to IS features, in this case contrast. I have argued that it is necessary to include the option of a movement operation independent from IS into a syntactic model of German, such as the Formal Fronting operation in the system of Frey (2005). Whether his implementation, that includes a syntactic minimality condition, or F & L's account, which makes predictions with respect to accent crossing, is preferable, cannot be decided on the basis of the study presented in this paper, but remains for further empirical research.

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Marta Wierzba
 Universität Potsdam
wierzba@uni-potsdam.de
<http://www.martawierzba.de>

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Re-examining the hodiernal present perfect: towards a unified account

Teresa Maria Xiqués

The paper re-examines the hodiernal Present Perfect (henceforth PrP) and shows that the nature of termination is not linked to outer aspect, but to the aspectual class of the predicate and that the 24-hour rule is mainly dependent on the presence of time adverbials. I argue that the hodiernal is not a separate reading of the PrP, but a subcase of the existential perfect. The crucial difference between the Catalan and English PrP is not that the former has an extra reading, but rather that it allows for the presence of time adverbials which fix the eventuality on the time axis.

1. Introduction

Klein (2009:6), following Dahl's (1985) insights, notices that in the analysis of the past tense 'there is not just a relation "before", but relations such as "long before", "shortly before" or "before but on the same day"'. This latter relation corresponds to the hodiernal¹ PrP in Catalan and Standard Peninsular Spanish². We can find examples of hodiernal PrP sentences in Catalan, cf. (1a), and Standard Peninsular Spanish, cf. (1b), respectively.

- (1) a. Hem anat al mercat avui a les deu.
have.1pl gone to.the market today at the ten
'We went to the market today at ten.'

(Pérez Saldanya 2002:2593)

- b. Luisa ha llegado a las tres.
Luisa has.3sg arrived at the three
'Luisa arrived at three.'

¹ From latin *hodie* 'today' (Dahl 1985).

² According to the *Nueva gramática de la lengua española* (Real Academia Española 2009), the hodiernal reading is also found in some Spanish varieties of Peru, Bolivia, Paraguay, northeast of Argentina and part of Central America. It has also been attested in Limouzi, an Occitan dialect (Comrie 1985), in the Florentine dialect (Bertinetto 1986: 405) and in seventeenth-century French. Although the present paper focuses on the Catalan PrP, the same description and analysis applies to Standard Peninsular Spanish. From now onwards I am only going to discuss Spanish data when necessary.

These examples refer to completed situations which take place on the day of utterance and can appear with punctual time adverbials, as in (1a). Moreover, example (2) shows that the hodiernal PrP also occurs in narrative passages.

- (2) Ells han arribat aquest matí, han visitat la
 they have.3pl arrived this morning have.3pl visited the
 ciutat i han marxat.
 city and have.3pl left
 ‘They arrived this morning, visited the city and left.’

However, unlike Catalan, the PrP in English cannot be modified by positional time adverbials which express a definite position on the time axis. This phenomenon is called the *present perfect puzzle* (Klein 1992) and it is illustrated in (3).

- (3) * Chris has left at six. (Klein 1992:546)

Although the present paper focuses on the nature of the hodiernal interpretation of the PrP in Catalan, there is a strong parallel between the PrP in Catalan and English. There are four readings of the English PrP which have been traditionally posited in the literature (Comrie 1976; among others): universal, experiential³, resultative and recent past, cf. (4). This latter reading is no more analysed as a distinct use, but as a subtype of the existential⁴ interpretation (McCoard 1978; Declerck 1991; among others).

- (4) a. For eight months he has lived here.
 (British National Corpus (BNC). *The best of Sunday Times travel*. Newton Abbot, Devon. 1988)
 b. They've been twice to Scotland. (BNC. Oral)
 c. Many hard working people have lost their homes. (BNC. *Today*, 1992)
 d. Levi has just won the Canadian Open. (BNC. *Golf Monthly*, 1991)

In (4a), the PrP has a universal interpretation since the eventuality holds throughout the whole time interval up to now, in (4b), the experiential PrP denotes that the individual has the experience of having been twice to Scotland. The resultative PrP in (4c) asserts that the result state of having lost their houses holds at utterance time. Finally, (4d) has a recent past meaning which locates the situation just before the utterance time.

Apart from the hodiernal reading of the PrP, already illustrated in (1) and (2), the other readings are also found in Catalan, cf. (5).

³ Until section 4, I will continue using the term experiential, but this reading as well as the resultative is going to be analysed as an existential perfect (Iatridou *et al.* 2001). In section 4.2, I claim that the hodiernal PrP like the experiential is a subcase of the existential PrP in Catalan. This paper focuses on the main similarities between the experiential and hodiernal reading, and does not consider the possibility of unifying the resultative reading. This issue is left open for future research.

⁴ Following Iatridou *et al.* (2001), the existential PrP describes an eventuality which is properly included in a perfect time interval. The boundaries of this time span are not by assertion part of the eventuality. The existential interpretation is further developed in section 4.

- (5) a. Sempre hem viscut en aquest poble i ens
 always have.1pl lived in this town and cl.dat.1pl

agrada molt.

like very.much

‘We have always lived in this town and we like it very much.’

(Pérez Saldanya 2002:2590)

- b. En Pere ha estat a Chicago.
 the Pere has.3sg been to Chicago

‘Peter has been to Chicago.’

(Pérez Saldanya 2002:2591)

- c. En Pere se n’ ha anat a Chicago.
 the Pere refl cl.inherent has.3sg gone to Chicago

‘Peter has gone to Chicago.’

(Pérez Saldanya 2002:2591)

Many studies of the PrP depart from the opposition between this compound tense and the Simple Past (henceforth SP). It has been generally assumed that these two express a temporal relation of anteriority: examples (6a) and (6b) denote events that take place at some point anterior to the moment of speech.

- (6) a. Mary played chess. E,R_S
 b. Mary has played chess. E_R,S

To capture the distinction between the PrP and the SP, Reichenbach (1947) proposed a model of the verbal tense system based on three points of time: the speech time (S), the event time (E) and the reference time (R). The comma indicates coincidence of the connected time points, and the underscore indicates temporal precedence. The notion of R, the temporal point from which the event is viewed, is introduced in order to represent complex tenses in English and capture the differences between SP and PrP tenses, among other things. The SP places E and R before S (cf. (6a)), whereas the PrP in this model is described as a tense that locates the E prior to S and R (cf. (6b)). In the latter case, the eventuality is viewed from the present moment: the described situation is still relevant at the utterance time.

The question that arises with respect to the PrP in Catalan and Standard Peninsular Spanish is whether we need to rely on the role of R to distinguish a hodiernal perfect from the other PrP uses. In the present paper, I claim that the hodiernal PrP, which has been traditionally assumed to refer to completed situations that have taken place on the same day as the utterance, does not correspond to a SP interpretation (i.e., E,R_S). I also show that the nature of termination, which has traditionally defined hodiernal PrP sentences, is not linked to outer aspect, that is, to viewpoint aspect, but to the aspectual class of the predicate. This fact also shows that the relation E_R,S does not hold either. Moreover, the 24-hour rule (Giorgi & Pianesi 1997; Brugger 2001; among others), which defines the reference time of the PrP sentence as an interval that is included in TODAY, is not that strict and it is mainly dependent on the presence of time adverbials. Hence, I argue that the hodiernal PrP is not a

separate reading of the PrP, but a subcase of the existential perfect.⁵ Following Iatridou *et al.*'s (2001) Perfect Time Span theory (henceforth PTS), the temporal representation of the hodiernal PrP, like in the case of the existential reading, crucially includes an interval (a PTS) in which there is a bounded or unbounded eventuality. This hodiernal reading allows, unlike the English existential PrP, the presence of certain time adverbials which fix the eventuality on the time axis (i.e., punctual time adverbials). Hence, the crucial property of the PrP in Catalan is not that it has an extra reading that English does not allow for, but rather that it allows for a temporal modification of the event by punctual adverbials.

This article is organized as follows. In section 2 I discuss previous approaches to the hodiernal PrP. Section 3 reviews, once again, the crucial properties of the hodiernal reading and discusses the role of *Akionsart* and time adverbial modification. Section 4 introduces the PTS theory that I adopt here and develops the present proposal. Finally, the paper concludes in section 5.

2. Previous approaches

It has been argued for Catalan (Pérez Saldanya (2002), Curell (2003) and Curell & Coll (2007)) as well as for Standard Peninsular Spanish (Brugger (2001) and Laca (2010)) that the PrP is ambiguous between a perfect and a so-called hodiernal interpretation. According to these authors, the PrP is ambiguous between the Reichenbachian temporal configurations (7a) and (7b). Examples (1) and (2) constitute two cases which are analysed as hodiernal perfects and are considered to have a past interpretation, cf. (7a), whereas examples (5a-c) have a perfect interpretation and are eventualities which are relevant at the utterance time, which is represented in (7b).

- (7) a. Simple Past/ Hodiernal interpretation: E,R__S
 b. Present Perfect⁶: E__R,S

If we assign the temporal schema E,R_S to hodiernal PrP sentences, we cannot strictly distinguish a SP from a PrP sentence, since both tenses would have the same Reichenbachian schema E,R_S. This analysis does not account for the incompatibility of the PrP with past temporal adjuncts (i.e., *ahir* 'yesterday'), cf. (8a)-(8b).

- (8) a.* Hem anat al mercat ahir a les deu.
 have.1pl gone to.the market yesterday at the ten
 'We went to the market yesterday at ten.'
 (Pérez Saldanya 2002:2593)
- b. Vamanar al mercat ahir a les deu.
 aux go to.the market yesterday at the ten
 'We went to the market yesterday at ten.'
 (Pérez Saldanya 2002:2593)

⁵ Thanks to Sabine Iatridou for suggesting this idea.

⁶ Although this paper only focuses on the analysis of the hodiernal reading, note that in general, the Reichenbachian schema E_R,S cannot account for other readings of the PrP such as the universal PrP (Portner 2003).

Time adverbials such as *ahir* ‘yesterday’ exclude the utterance time and can only appear with SP sentences, as (8b) shows. Moreover, even the relation E_R,S does not always hold. As has been mentioned above, the hodiernal PrP traditionally refers to completed situations which occur before the utterance time. This is, in fact, the case of example (1a): the event of *going to the market* has a natural endpoint and has terminated at some point before the utterance time. However, consider sentence (9), for instance. It presents a homogeneous predicate, the state of *being at home* which, unlike (8a), does not have a natural endpoint and holds at utterance time, since the individual asserts that he has stayed all day long at home and continues there because he didn’t go out.

- (9) He estat a casa i no he sortit.
 have.1sg been at home and no have.1sg left
 ‘I have been at home and I haven’t gone out.’

It is also worth noticing that Reichenbach’s approach treats E as well as R as points and cannot generally account for time adverbial modification. In example (9), the locative time adverbial *avui* ‘today’ does not modify either E or R since the event is included within the interval of the current day.

García Fernández (2000) for Standard Peninsular Spanish PrP, and Martínez-Atienza (2008) for Standard Peninsular Spanish and Catalan PrP, following Klein’s (1994) insights, argue that there is yet a different set of temporal structures for Catalan and Standard Peninsular Spanish PrP. The structures they propose are given in (10).⁷

- (10) a. E_R,S
 where the Situation Time coincides with the Topic Time
- b. S,R,E
 where the Situation Time precedes the Topic Time

(García Fernández 2000:221)

(10a) corresponds to the Reichenbachian structure of the PrP which is interpreted as a perfective or aorist, whereas (10b) corresponds to a present temporal structure which is interpreted as a perfect. Given these two temporal structures García Fernández (2000) and Martínez-Atienza (2008) explain why one cannot modify the English PrP with punctual time adverbials (i.e., **I have woken up at six*). They postulate that the PrP in English corresponds to the temporal configuration shown in (10b) and does not have a use associated with (10a), hence, it cannot be modified by adverbials which locate the situation previous to the utterance time. The problem, however, is that the core meaning of the perfect *per se* is related to the expression of an event which is located before the utterance time, and a present temporal structure like (10b) does not help us to understand the nature of this compound tense.

Unlike previous Reichenbachian accounts, Demirdache & Uribe-Etxebarria’s (2002) (henceforth D&U-E) neo-Reichenbachian theory offers an account of the interaction of tense, aspect and time adverbials and derives the different readings of the perfect taking into

⁷ In Klein (1994), the Time of Situation refers to the event time and the Topic Time to the reference time. According to the reviewer, the ambiguity they provide is puzzling since they give a temporal schema which has a different semantic interpretation. This is in conflict since there is no way to conjoin the temporal configuration of a perfect or a present with the semantic interpretation of a past or a perfect, respectively.

account the *Akionsart* of the predicate. The above analyses are similar to their proposal developed for the French *passé composé*. D&U-E (2002) consider the French *passé composé* as an ambiguous tense and analyse the past interpretation of this compound tense as a SP. As we can see in (11), the French *passé composé* is truly ambiguous between a perfect and a past interpretation since this compound tense allows past time adverbials (i.e., *hier* ‘yesterday’).

- (11) a. L’ avion a aterri maintenant. [French]
 the plane has.3sg landed now
 ‘The plane has landed now.’
- b. L’ avion a aterri hier. [French]
 the plane has.3sg landed yesterday
 ‘The plane landed yesterday.’
- (D&U-E 2002:142)

Xiqués (2012) has tentatively suggested a similar analysis in order to account for the hodiernal interpretation. However, we cannot straightforwardly extend the French analysis to Catalan. Once again, if Catalan worked like French, examples such as (8a) would be predicted to be acceptable. This means that we cannot maintain the claim that Catalan is ambiguous between a perfect and past interpretation, similarly to *passé composé* in French.

In this section, I have shown that previous analyses developed within the Reichenbachian framework fail to account for the hodiernal PrP interpretation. The temporal schema of the SP (i.e., E,R_S) does not properly distinguish a SP from a hodiernal PrP reading since the SP schema cannot capture the impossibility of modifying PrP sentences with past time adverbials in Catalan (cf. (8a)). Thus, the exact location of R becomes crucial since it is necessary to account for the hodiernal interpretation.

3. The hodiernal reading re-examined

As already pointed out in the previous section, the hodiernal PrP has been traditionally characterized as a reading which refers to a completed situation and takes place on the present day. Hence, it obeys the so-called 24-hour rule (Giorgi & Pianesi 1997; Brugger 2001; among others) and allows punctual time adverbial modification. In the following subsections, I re-examine the main characteristics of the hodiernal reading to show that they cannot be maintained in any strict sense. Section 3.1 focuses on the role of *Akionsart*, section 3.2 on the interpretation of the PrP without adverbials and 3.3 on the role of time adverbial modification.

3.1. The role of *Akionsart* of the past participle

As pointed out in the previous section, the relation of anteriority between E_R does not always hold and the hodiernal reading of the PrP, which has been traditionally assumed to refer to completed situations which no longer hold at the utterance time, should be redefined. According to Janssen & Borik (2008:18), the notion of remoteness, that is, the placement of an event on the same day or long ago before the utterance time, is not ‘linked to termination: remoteness merely characterizes the placing of an event in the space-time continuum’. Hence, following the gist of Janssen & Borik (2008), I claim that the hodiernal PrP, like other

Romance SP forms⁸, allows for termination, but does not logically entail it. The termination effect belongs to the domain of the predicate, not to the system of tense.

As Borik (2006) puts it, eventive predicates have a natural endpoint, and, thus, entail that the entire event is located before the utterance time. Consider the following examples.

(17) *I have eaten breakfast. In fact, I am still eating breakfast.

(Borik 2006:135)

The event of *eating breakfast* has a natural endpoint and the individual cannot be continuing *eating breakfast* at the utterance time. In the case of Catalan, we also find the same effect: the eventive predicate in (18) entails the termination of the event.

(18) * Hem anat al mercat. De fet, encara no hem arribat
 have.1pl gone to.the market of fact yet no have.1pl arrived
 * ‘We went to the market. In fact, we haven’t arrived yet.’

(Pérez Saldanya 2002:2593)

However, it is worth noticing that there are cases which show variable telicity. According to Kennedy (2012a), incremental verbs with referential/quantification arguments are predicted to show variable telicity. Although it is beyond the scope of this paper to study in more detail the nature of incremental verbs with referential/quantificational arguments, the examples in (19) further support the idea that the notion of termination is not directly linked to tense.

(19) a. I ate Mr Unagi in 30 seconds flat.

b. I ate Mr Unagi for a few minutes, then decided to switch to tofu.

(Kennedy 2012a:120)

The SP sentence illustrated in (19a) shows a telic predicate, *eat Mr Unagi*, which reaches an endpoint before the utterance time and denotes that the individual finished eating the whole plate of Mr Unagi in 30 seconds. However, according to Kennedy (2012a:120), it seems to be the case that ‘*eat Mr Unagi* can, in appropriate contexts, be understood atelically’. In (19b), the individual asserts that he just stopped eating Mr Unagi before the utterance time. The event of *eating Mr Unagi*, thus, was not completed: the individual was eating it for a few minutes, but after that time he stopped eating Mr Unagi to start eating tofu. We also find the same effect in Catalan, cf. (20):

(20) a. He llegit un llibre en una hora.
 have.1sg read a book in an hour
 ‘I have read a book in an hour.’

b. He llegit un llibre durant una hora, però el
 have.1sg read a book for an hour but cl.acc.3sg

continuaré llegint després.
 continue.fut.1sg reading later

‘I have read a book for an hour, but I will continue reading it later.’

⁸ Cf. Cipria & Roberts (2000).

Like in the case of (19a), example (20a) is also telic: the event of *reading a book* takes place in one hour; whereas in (20b), the same predicate can also be interpreted atelically. Example (20b) asserts that the individual was engaged in *reading a book for one hour*. That means that the individual did not finish it in that hour, he just stopped reading it to continue reading later.

With respect to atelic predicates⁹, the relevant eventualities do not have a natural endpoint and external aspect does not guarantee that eventualities are not going to hold at the utterance time. These predicates are homogeneous and have the subinterval property, that is, the eventuality description is instantiated at every subinterval of a given interval, cf. (21) and (9), repeated in (22) for convenience.

(21) I have truly loved John. In fact, I still do.

(Borik 2006:135)

(22) He estat a casa i no he sortit.
 have.1sg been at home and no have.1sg left
 ‘I have been at home and I haven’t left.’

Examples (21) and (22) describe the state of *loving John* and *being at home* respectively as situations which held at a time before the utterance time but, in fact, may continue holding at the present moment since, in example (21), the individual still loves John and, in (22), the individual asserts that he has not left home. The interpretation of termination of these kinds of predicates is not related to the function of the verb class since the eventuality of *being at home* has no natural endpoint.¹⁰ Hence, termination is an effect that can only be pragmatically inferred.

So far, this sub-section has shown that the notion of completion is not a specific characteristic of the hodiernal reading of the PrP. If the predicate is eventive, cf. (18), it denotes a situation which has terminated before the utterance time. With respect to stative predicates, cf. (22), they have no natural endpoint and we can only pragmatically imply that the situation has reached an end before the utterance time. In the following section, I proceed to show that it is not the case that all kinds of unmodified PrP sentences have a *default* hodiernal interpretation.

3.2. Unmodified present perfect sentences

As seen above, the location of the event before the utterance is not directly related to the hodiernal use of the PrP: it mainly depends on the *Akionsart* of the predicate. Apart from this notion, the literature has also assumed that the Catalan as well as Peninsular Standard Spanish PrP has a specific constraint which brings out this hodiernal interpretation. This constraint is called the 24-hour Rule (Giorgi & Pianesi 1997; Brugger 2001; among others). Brugger (2001) defines this rule for the Spanish PrP as follows:

⁹ There may also be differences between states and activities, but I leave it open for further research.

¹⁰ According to the reviewer, a German sentence like *Ich war den ganzen Tag zu Hause* ‘I was home all day’ seems to raise a similar issue: it could be uttered in the evening at a party elsewhere or equally well while you’re still at home. So it seems that the notion of event time with statives is pointing out a more general problem of the Reichenbachian system which is worth noting and this paper leaves open for future.

- (24) The 24-hour Rule:
The Reference Time of a Spanish PrP sentence is an interval that is included in TODAY.
(Brugger 2001:253)

However, this section provides further empirical evidence to show that this restriction which has traditionally characterised the hodiernal PrP is too strong. It appears that the 24-hour rule interpretation is really dependent on the presence of a temporal adverbial and not of the interpretation of the PrP itself. Consider (25), for example.

- (25) En Joan ha sortit.
the Joan has.3sg left
'John has left.'
(Giorgi & Pianesi 1997:122)

Even though the most salient interpretation of a sentence such as (25) implies that the event took place on the same day of utterance (i.e., *En Joan ha sortit (de casa)* 'John left (home)'), we cannot rule out other possible interpretations (i.e., *En Joan ha sortit (del país)* 'John has left (the country)') which are not linked to the present day. Likewise, consider examples in (26). These data further support the idea that there is not a specific rule which forces us to locate unmodified PrP sentences on the same day of utterance when they appear in out of the blue contexts.

- (26) a. He menjat cargols. [Hodiernal/Experiential]
have.1sg eaten snails
'I have eaten snails.'
- b. He perdut les meves ulleres. [Hodiernal/Resultative]
have.1sg lost the my glasses
'I have lost my glasses.'

The eventuality of *eating snails* in (26a) takes place at some time prior to the utterance time and it does not necessarily have to refer to an event that has taken place in the current day in which the sentence is uttered. Likewise, example (26b) depicts a telic eventuality which may have a resultative reading of the PrP and its resulting state may abut R which is cotemporal with the utterance time. But it may also refer to a hodiernal reading if the event of *losing my glasses* has taken place today.

If the hodiernal PrP were a distinct semantic use, we would not expect that unmodified PrP sentences in out of the blue contexts would have more than one reading. However, we can see that unmodified PrP sentences even in English can have the so-called hodiernal reading only because there is nothing that prevents us from placing the eventuality of *leaving*, in (25), and *having eaten snails* and *losing my glasses*, in (26), on the same day of utterance or some time before. The specific readings of the PrP cannot be clearly distinguished without extra sentential or discourse information. It seems that there is one unique common meaning and the discourse and sentential adverbials brings out the different readings of the PrP. However, even in presence of certain time adverbials, the 24-hour rule does not hold as shown in the following sub-section.

3.3. The role of time adverbials

The present section focuses on the interaction of the PrP with time adverbials to show that, in fact, the hodiernal PrP does not obey the so-called 24-hour constraint. As pointed out in the previous sub-section, the availability of the hodiernal interpretation is really dependent on the presence of temporal modification since it is only available when PrP sentences appear with time adverbials which locate an eventive or stative predicate in a time interval which takes place on the same day of the utterance. Consider the examples illustrated in (27) – (1a) is repeated in (27a) for convenience.

- (27) a. Hem anat al mercat avui a les deu.
 have.1pl gone to.the market today at the ten
 ‘We went to the market today at ten.’
 (Pérez Saldanya 2002:2593)
- b. Aquest matí he vist a la Marta.
 this morning have.1sg seen to the Marta
 ‘This morning I have seen Marta.’
- c. Ha arribat fa una hora.
 has.3sg arrived ago an hour
 ‘He arrived one hour ago.’
- d. Tot avui (que) ha plorat.
 all today (that) has.3sg cried
 ‘He has been crying all day.’
 (Rigau 2001:89)

Crucially, the sentences in (27) bring out the hodiernal interpretation of the PrP. As already pointed out in the introduction, punctual time adverbials such as *a les deu* ‘at ten’ in (27a) locate the event at a specific time (i.e., *at ten*) before the utterance. In (27b), the locative adverbial headed by the demonstrative and a noun phrase (i.e., *aquest matí* ‘this morning’) locates the eventuality at some unspecific moment before the utterance time, but within the denotation of *aquest matí* ‘this morning’. It is also possible to utter example (27b) in the afternoon of the same day since the moment of speech may not be included within the denotation of *aquest matí* ‘this morning’. The temporal circumstantial construction *fa una hora* ‘one hour ago’ in (27c) measures the temporal distance between a temporal point (i.e., the time of arrival) up to now. Moreover, it is also worth noting that in Catalan there are certain kinds of time adverbials headed by the quantifier *tot XP (que)* ‘all XP (that)’ as illustrated in (27d) which can also give rise to hodiernal interpretations. According to Rigau (2001), when the temporal-aspectual marker *que* is present, the event of *crying* in (27d) holds throughout the entire time interval which is modified by the quantified time adverbial *tot el dia* ‘all day’ up to now, whereas when it is absent the situation is placed at some moment before the utterance time.

As already mentioned in the previous section, PrP sentences in English can have the so-called hodiernal reading since there is nothing that prevents us from interpreting the described eventualities as taking place on the same day as the utterance. This is also possible

with certain time adverbials, cf. (28a), but it is disallowed in the presence of punctual time adverbials, cf. (28b).

(28) a. I have seen him this morning.

(Comrie 1985:33)

b. Chris has left at midnight.

(Hitzeman 1994:242)

In (28a), like in the case of (27b), the utterance time may not be included within the denotation of *this morning*. According to Comrie (1985: 33), ‘some speakers allow collocation of the perfect time adverbials locating the situation in a time segment in the very recent past, for example earlier on the day in which the speech situation takes place, i.e. *I have seen him this morning*, said during the afternoon (i.e. when this morning refers to a time period in the past)’. Examples such as (28a) further support the idea that the PrP is not ambiguous between a past and perfect interpretation and does not have a specific 24-hour constraint incorporated in its meaning. However, examples such as (28b) cannot be placed on a specific moment before the utterance time. According to Hitzeman (1994:242), example (28b) ‘can mean that Chris has left at midnight on some past occasion’. That is, unlike Catalan, this punctual time adverbial cannot be fixed on the time axis in English.

The absence of the 24-hour rule is further attested when these PrP sentences appear with time adverbials which locate an eventive or stative predicate in a time interval which begins at some moment before today. Schaden (2009) claims for English and Spanish, that, although the impossibility to combine PrP sentences with past time adverbials is, in fact, a strong tendency, examples in (29) cannot be completely ruled out.¹¹

(29) a. We have already discussed it yesterday.

(Huddleston & Pullum 2002:144)

b. Don Fulano de Tal y Tal ha muerto ayer, a las
 Don Fulano de Tal and Tal has.3sg died yesterday at the
 seis de la tarde
 six of the afternoon.

‘Don Fulano de Tal y Tal died yesterday, at six in the afternoon.’

(Corpus de Referencia del Español Actual (CREA); cit. from Schaden 2009:124)

Although, as seen in section 2, Catalan PrP sentences disallow past time adverbials (8b), there are relevant data against the 24-hour rule which are worth noting. Consider examples (30), for instance.

(30) a. Aquesta nit m’ he trobat malament.
 this night refl.1sg have.1sg felt ill
 ‘Last night I felt ill.’

(Curell 2003:37)

¹¹ In other varieties such as Australian Colloquial English (cf. Engel & Ritz 2000) and some varieties of Spanish (cf. Real Academia Española 2009: 1735-1736), the PrP is compatible with definite past time adverbials.

- b. Aquest cap de setmana hem anat al museu Dalí.
 this end of week have.1pl gone to.the museum Dalí
 ‘This weekend we went to Dalí’s museum.’

In (30), the locative adverbials headed by a demonstrative *aquesta nit* ‘this night’ and *aquest cap de setmana* ‘this weekend’ do not include the utterance time and they easily combine with PrP sentences which locate the event before the present day. Crucially, these examples refer to situations which take place the previous night and weekend before the utterance time. The PrP is not only available with locative time adverbials headed by a demonstrative. Consider examples (31), for instance.

- (31) a. Per Nadal he estat a Mèxic.
 for Christmas have.1sg been to Mexico
 ‘I was in Mexico for Christmas.’

- b. Han arribat dijous al Prat.
 have.3pl arrived Thursday at.the Prat
 ‘They arrived at Prat on Thursday.’

(Google; www.el9nou.cat (05/2012))

Like in the case of (30), the temporal adjuncts *per Nadal* ‘for Christmas’, in (31a), as well as the bare locative adverbial *dijous* ‘on Thursday’, in (31b), do not include the utterance time and, although the events occur before the current day of utterance, they also appear with PrP sentences.

Next, let us consider the quantified temporal adverbial *tot XP (que)* ‘all XP (that)’ as (32) illustrates.

- (32) a. Tot aquest estiu ha plogut.
 all this summer has.3sg rained
 ‘It has rained all summer.’

- b. Tot aquest estiu que ha plogut.
 all this summer that has.3sg rained
 ‘It has rained all summer.’

(Rigau 2001:86)

The quantified time adverbial *tot aquest estiu* ‘all this summer’ in (32a) places the eventuality of *raining* at some moment before the utterance time, but within the denotation of *tot aquest estiu* ‘all this summer’. Although, like in the case of (27b) and (28a), the quantified time adverbial in (32a) may not include the utterance time. In (32b), the quantified time adverbial *tot aquest estiu que* ‘all this summer that’ locates the eventuality of *raining* within the interval *aquest estiu* ‘this summer’, but unlike the former quantified time adverbial, the situation holds throughout the entire time interval up to now.

Summing up, section 3.3 has shown that the contribution of temporal adverbials of different kinds is crucial for the hodiernal interpretation of the PrP (cf. (27)). English also allows punctual time adverbials (cf. (28b)), but, unlike Catalan, they cannot refer to a specific point on the time axis. Moreover, this sub-section has provided further empirical evidence against the 24-hour rule (Giorgi & Pianesi 1997; Brugger 2001; among others) since there are

PrP sentences which combine with time adverbials that do not include the utterance time, but place the predicate at some moment before today (cf. (29) – (32)) as well as PrP sentences which combine with quantified time adverbials such as *Tot XP que* ‘all XP that’ which describe an eventuality which begins at some moment before today and holds up to now (cf. (32b)). These empirical facts have not been properly accounted for in previous Reichenbachian theories. In the present paper I adopt Iatridou *et al.*’s (2001) PTS theory to propose an alternative analysis.

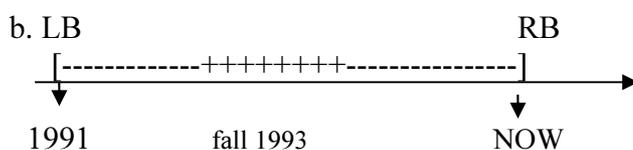
4. A perfect time span approach to the present perfect in Catalan

4.1. The perfect time span theory

According to Iatridou *et al.* (2001:175), the temporal representation of the PrP crucially includes an interval, a PTS in/throughout which there is a bounded/unbounded eventuality.¹² The temporal interval called Extended Now (McCoard 1978; Dowty 1979; among others) or PTS (Iatridou *et al.* 2001; among others) constitutes an interval of time which begins at some point in the past and includes the utterance time. The Left Boundary (LB) of the PTS may be settled by an adverbial or contextually, and the Right Boundary (RB), which is set up by tense, in this case by the auxiliary verb, includes the utterance time, cf. (33).

(33) a. Since 1991, I have been to Cape Cod only once, namely in the fall of 1993.

(Iatridou *et al.* 2001:169)

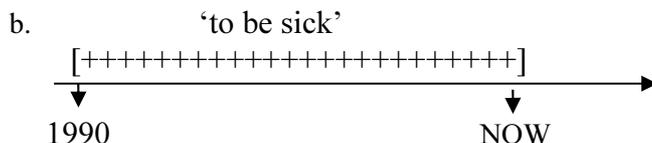


The LB in example (33a) is specified by the time adverbial *since 1991* and the event time is also located in the PTS, specifically, *in the fall of 1993*. The dashed (-) interval is related to the temporal interval settled by the LB which holds throughout the PTS up to now. According to Iatridou *et al.* (2001), there is not a strict correspondence between the boundaries of the PTS and Reichenbach’s temporal E_R relation. Although the LB could be associated with R, it does not correspond to the event time since, as said above, it is set by an adverbial or contextually and, as illustrated in (33b), the event time may be located at some point within the PTS (i.e., *in the fall of 1993*).

Moreover Iatridou *et al.* (2001) as well as Borik (2006) and Janssen & Borik (2008) associate the notion of completion or boundedness not with outer aspect, but with the aspectual class of the predicate. According to Iatridou *et al.* (2001:177), completion is not ‘part of the meaning of the perfect at all, but a reflex of the aspectual morphology ([un]boundedness) that is embedded below the perfect’. Hence, the PTS theory shows again that the classic Reichenbachian relation E_R does not always hold and the PTS is the best theory that accounts for the universal PrP (Portner 2003), cf. (34).

¹² According to Iatridou *et al.* (2001), an eventuality is described as unbounded when it is not asserted to have reached an endpoint and it is bounded when it is asserted to have completed/terminated.

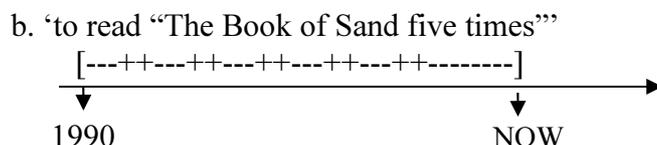
- (34) a. I have been sick since 1990.

(Iatridou *et al.* 2001:155)

The temporal schema of (34b) captures the universal interpretation of (34a) since the eventuality of *being sick* stretches throughout the whole PTS up to now. The temporal schema illustrated in (34b) can also account for the fact that the universal reading in Catalan is usually conveyed by the present tense (i.e.,: *Visc a Londres des de 1995* 'I have lived in London since 1995'). The eventuality that appears in present tense in Catalan, like in the case of the PrP in English, cf. (34b), holds at every subinterval of the whole time interval.

As for the existential perfect¹³, it is obtained when the eventuality is properly included in the PTS and the boundaries of the PTS are not by assertion part of the eventuality (Iatridou *et al.* 2001:176). It combines with any kind of *Akionsart* and temporal adverbials are not compulsory. Following Iatridou *et al.*'s (2001:177) insights, the 'RB of the perfect time span is the utterance time and since the underlying eventuality happens in the perfect time span, it follows that the eventuality will occur before RB/utterance time'. Consider sentence (35), for example.

- (35) a. Since 1990, I have read "The Book of Sand" five times.

(Iatridou *et al.* 2001:165)

The representation in (35b) shows that the event of *having read "The Book of Sand" five times* is associated with the pluses (++) and it is not on-going during the whole time span, as there are intervals at which the event does not hold, represented by the dashes (--) in (35b).

The PTS is also the theory which best approaches the *present perfect puzzle* (Portner 2003). For instance, in a sentence like **John has arrived yesterday*, the positional time adverbial *yesterday* modifies the PTS, but does not include the utterance time. However, this theory does not account for all cross-linguistic data. Like in the case of French, for example, the German PrP also allows past time adverbials, cf. (36).

- (36) Sirgurd ist gestern angekommen.

[German]

Sirgurd is yesterday come

'Sirgurd came yesterday.'

(Rothstein 2008:67)

¹³ As said in the introduction, Iatridou *et al.* (2001) analyse experiential and resultative readings of the PrP as existential PrP sentences.

There are authors such as Portner (2003); Pancheva & von Stechow (2004); among others, who follow the gist of Iatridou *et al.* (2001), but assume that the nature of the present tense of the auxiliary verb of the PrP is different across languages. Consider (37), for example.

- (37) a. Fritz ist in 10 Tagen krank. [German]
 Fritz is in 10 days sick
 ‘Fritz will be sick in 10 days.’

b. # Fred is sick in ten days.

(Pancheva & von Stechow 2004:4-5)

In (37a), the German present tense can express a future meaning, whereas in English, although it is possible to use the simple present to refer to future scheduled situations, example (37b) is not as felicitous as in German. According to Pancheva & von Stechow (2004:4), in English, the present tense ‘introduces an interval coextensive with the speech time, whereas in German, it introduces an interval no part of which may precede the speech time’. In Catalan, if the present tense appears with future time adverbials, it may also refer to future planned situations, cf. (38).

- (38) El meu germà es casa demà.
 the my brother marry.3sg tomorrow
 ‘My brother is going to get married tomorrow.’

(Pérez Saldanya 2002:2620)

Like in (37a), the event is placed on the day following the day of utterance in (38) (i.e., *demà* ‘tomorrow’). Moreover, consider the example in (39).

- (39) a. Ara treballa.
 now work.1sg
 ‘I am working now’

(Pérez Saldanya 2002:2618)

b. * I sing now.

In Catalan, the present tense can not only refer to planned future situation, but also to events which take place at the present moment. Example (39a) describes that the individual is working at the utterance time. Unlike Catalan, example (39b) shows that English does not allow such interpretation.

Although we would need to further develop the idea of a parametric variation between Catalan, German and English present tense, it seems that, as already said in the previous section, present tense morphology of the auxiliary verb of the PrP is semantically loaded in Catalan: the eventuality, which may have either occurred on the present day or at some point before the LB, is still relevant at the utterance time.

Section 4.1 has outlined the main properties of the PTS theory which shows that the relation E_R does not model the properties of the PrP properly: there are time adverbials which specify the LB of the PTS (cf. (33)) and there are eventualities which may have not reached an endpoint before the utterance time (cf. (34)). The PTS theory can also account for the *present perfect puzzle* (Portner 2003; Pancheva & von Stechow 2004; Rothstein 2008;

among others). It has been assumed that the present tense of the auxiliary verb has a different nature in languages such as German and English, but it still remains open for further research to see whether the Catalan facts are a result of some parameter being set differently from both English and German.

4.2. Proposal

This section presents an alternative to previous Reichenbachian accounts for the hodiernal interpretation of the PrP. Following Iatridou *et al.*'s (2001) PTS theory, I argue that the hodiernal PrP is a subcase of the existential PrP. The temporal representation of the hodiernal PrP, like in the case of the existential reading, crucially includes an interval (a PTS) in which there is a bounded or unbounded eventuality. Hence, if it is the case that the hodiernal is also a case of the existential PrP, then it follows that the hodiernal PrP example in (40a) entails the existential (40b).

- (40) a. Hem anat al mercat avui a les deu.
 have.1pl gone to.the market today at the ten
 ‘We went to the market today at ten.’

(Pérez Saldanya 2002:2593)

- b. Hem anat al mercat.
 have.1pl gone to.the market
 ‘We went to the market.’

The semantics of the existential PrP (cf. (35)) properly accounts for the semantics of the hodiernal: the eventuality is properly included within the time span of the perfect. Its LB may be specified by a time adverbial or contextually and its RB is set up by the present tense of the auxiliary verb.

This section shows that the hodiernal reading is not a separate reading of the PrP in Catalan since both existential and hodiernal pattern alike: the eventuality is properly included within the boundaries of the PTS. But, as already pointed out in the previous section, the Reichenbachian relation E_R does not always hold since the LB of the PTS may be modified by a time adverbial and the time span may also include unbounded eventualities. In the following sections, these issues are further developed. In section 4.2.1, I present an analysis taking into account the role of *Akionsart* and, in section 4.2.2, the role of time adverbials which bring out the hodiernal interpretation of the PrP in Catalan.

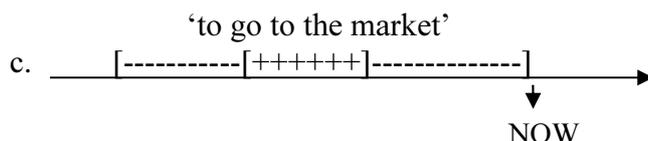
4.2.1. The role of *Akionsart*

As discussed above, Iatridou *et al.* (2001) and Janssen & Borik (2008), among others, associate the notion of completion with the function of the aspectual class of the predicate. In section 3.1, it has been argued that this notion is not a specific characteristic of the hodiernal reading of the PrP as has been traditionally assumed. If the predicate is eventive, it presents a situation which reaches an endpoint before the moment of speech, cf. (41a), since it cannot hold at the utterance time as already pointed out in example (27a), repeated in (41b) for convenience.

- (41) a. Hem anat al mercat avui a les deu.
 have.1pl gone to.the market today at the ten
 ‘We went to the market today at ten.’

(Pérez Saldanya 2002:2593)

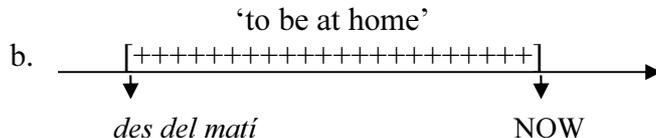
- b. * Hem anat al mercat. De fet, encara no hem arribat
 have.1pl gone to.the market of fact yet no have.1pl arrived
 * ‘We went to the market. In fact, we haven’t arrived yet.’



In the PTS schema shown in (41c), the event is properly included within the boundaries of the PTS: the LB is specified by context and its RB, by the present tense of the auxiliary verb.

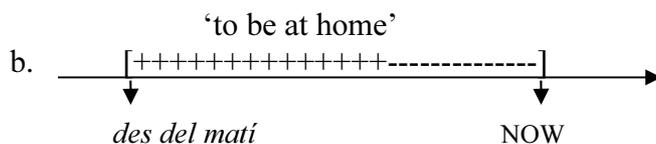
With respect to stative predicates, they do not have a natural endpoint and, in this respect, the situation denoted by the predicate can still hold at the utterance time. Consider (42a), for example.

- (42) a. He estat a casa des del matí.
 have.1sg been at home since of.the morning
 ‘I have been at home since morning.’



The schema illustrated in (42b) patterns with the universal reading of the PrP, cf. (34). The state of *being at home* holds throughout the entire PTS: its LB is specified by the durational time adverbial *des del matí* ‘since morning’ and the RB is included in the PTS (Iatridou *et al.* 2001). However, the RB is not part of the assertion, it is implied since it is possible to cancel the inference that this state holds if we add further contextual information. Consider (43), for example.

- (43) a. He estat a casa des del matí, però he
 have.1sg been at home since of.the morning but have.1sg
 sortit fa una hora.
 left ago an hour
 ‘I have been at home since morning, but I left home an hour ago.’



In (43a) we pragmatically imply that the situation described does not hold at the utterance time (Borik 2006; Janssen & Borik 2008; among others) and the dashed (-) interval in (43b) depicts that the state does not hold any longer. Hence, the eventuality is properly included in the PTS: its LB is specified by the durational adverbial *des del matí* ‘since morning’ and the RB by the present tense of the auxiliary verb.

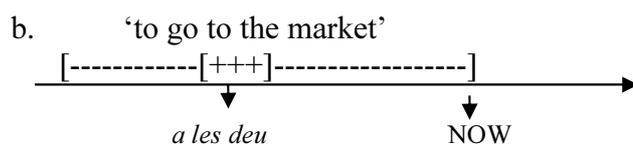
Following the gist of Iatridou *et al.* (2001) and Janssen & Borik (2008), the present sub-section has shown that the nature of termination is not associated with the perfect construction. The existential perfect just locates the event at some point before the RB (utterance time) and, crucially, it is the lexical aspect of the predicate which may present a situation as completed or not. In the case of eventive predicates, the situation reaches a natural endpoint before the utterance time and it is included in the boundaries of the PTS (cf. (41c)); whereas in the case of statives, the situation holds throughout the PTS and their temporal schema patterns with the universal reading since the utterance time is also included, (cf. (42b)), unless we add further contextual information and pragmatically imply that the situation does not hold any longer (cf. (43b)). It still remains to be seen how the PTS captures time adverbial modification.

4.2.2. The interaction of the present perfect with time adverbials

This last sub-section focuses on the interaction of punctual time adverbials and certain locative and quantified temporal constructions which usually give rise to hodiernal interpretations. As illustrated in the introduction, the hodiernal PrP in Catalan is always available with the presence of punctual time adverbials (i.e., *a les set* ‘at seven’). Consider (41a), for example, repeated in (44a).

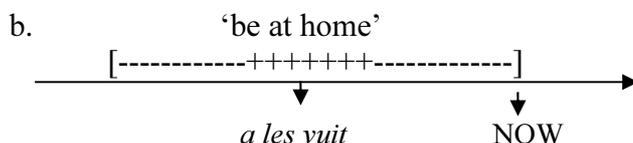
- (44) a. Hem anat al mercat avui a les deu.
 have.1pl gone to.the market today at the ten
 ‘We went to the market today at ten.’

(Pérez Saldanya 2002:2593)



In (44b), the event of *going to the market* is placed before the utterance time, specifically, at the most recent time it was 10 o’clock. Although the punctual time adverbial modifies the event and places it before the utterance time, it is included within a PTS which is contextually settled (i.e., *today*) and stretches up to now. The temporal schema of stative predicates differs in several respects, cf. (45).

- (45) a. He estat a casa a les vuit.
 have.1sg been to home at the eight
 ‘I was at home at eight.’



The stative predicate of *being at home* is modified by a punctual time adverbial (i.e., *a les vuit* ‘at eight’) but it may not refer to the exact time in which the individual was at home since the predicate is unbounded and, without further contextual information, the eventuality may begin before eight and end up after eight. Hence, crucially, the punctual time adverbial picks up one of the subintervals in which the individual was at home. However, unlike in the Catalan PrP, punctual time adverbials cannot modify the event in the English PrP. That is the case of (28a) repeated in (46) for convenience.

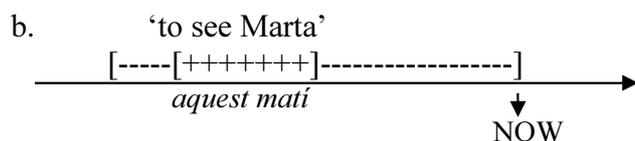
(46) Chris has left at midnight.

(Hitzeman 1994:242)

In (46) the punctual time adverbial *at midnight* locates the event at some past interval. According to Hitzeman (1994), the reading of example (46) is not Reference-dependent since ‘the reading in which midnight = R = S is ruled out because *midnight* cannot be used to refer to S’. This is also the case of Catalan, a punctual time adverbial such as *al migdia* ‘at noon’, for example, cannot refer to the utterance time, but it can refer to the most recent *noon* before the utterance in a sentence such as *Ha marxat al migdia* ‘He left at noon’. Crucially, unlike English, Catalan PrP sentences can be fixed on the time axis when they combine with punctual time adverbials. It seems that this fact is probably related to the nature of the present tense (cf. Pancheva & von Stechow 2004), but this issue is still subject to further research.

Locative time adverbials which are headed by a demonstrative determiner and a noun phrase (i.e., *aquest matí* ‘this morning’) can also give rise to hodiernal interpretations, cf. (27b), repeated below in (47a):

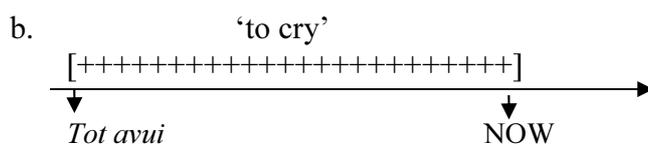
(47) a. Aquest matí he vist a la Marta.
 this morning have.1sg seen to the Marta
 ‘This morning I have seen Marta.’



Although in (47a) the event time is not specified, the locative time adverbial *aquest matí* ‘this morning’ refers to the most recent morning preceding the utterance time. The event is located within the PTS, at some time prior to the RB, but it does not have a fixed position on the time axis. Hence, it is plausible to analyse these examples as existential PrP sentences, cf. (35). The locative adverbial in (47b) is located within the PTS. As seen in section 3.3, this is also an option (with restrictions) in English (Comrie 1985:33), cf. (28).

As pointed out in section 3.2.2, it is worth noting that atelic PrP predicates in Catalan can appear with temporal quantified adjuncts as in (27d) and (32), illustrated again in (48) - (50).

(48) a. Tot avui que ha plorat.
 all today that has.3sg cried
 ‘He has been crying all day.’



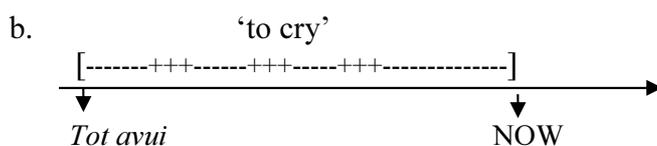
The event of *crying* in (48) holds throughout the entire PTS: the whole interval is specified by the quantified temporal adjunct *tot avui que* ‘all today that’ and the RB is settled by the present tense of the auxiliary verb. According to Rigau (2001) the temporal-aspectual marker *que* forces to interpret the PrP sentence as hodiernal. Rigau (2001: 96) claims that ‘it requires that the situation is taking place during the present day or some division of the present day previous to the time of speech’. The PTS schema in (48b) can also capture the fact that the quantified temporal adjunct *tot XP que* ‘all XP that’ can also be combined with the present tense (Rigau 2001), cf. (49a), unlike in the case of *tot XP*, cf. (49b).¹⁴

- (49) a. Tot avui que plora.
 all today that cries.3sg
 ‘He has been crying all day.’
- b. *Tot avui plora.
 all today cries.3sg
 ‘He has been crying all day.’

In the case of example (50), the event of *crying* is located at some moment before the utterance time, but within the interval *today*: its LB is specified by the quantified temporal adjunct *tot avui* ‘all today’ and the RB is settled by the present tense of the auxiliary verb.

- (50) a. Tot avui ha plorat.
 all today has.3sg cried
 ‘He has been crying all day.’

(Rigau 2001:89)



As shown in the previous example, if the complementizer *que* ‘that’ is absent, the situation is placed at some moment previous to, cf. (51a) or later to (51b) the moment of speech (Rigau 2001). Examples in (52) are disallowed with the presence of the complementizer *que* ‘that’.

- (51) a. Tot ahir va ploure.
 all yesterday aux rain
 ‘It rained all day yesterday.’

¹⁴ The exact details of the semantic and syntactic effects of the complementizer *que* ‘that’ still remain open.

- b. Tot demà plourà.
 all tomorrow will.rain.3sg
 ‘It will be raining all day tomorrow.’

(Rigau 2001:94)

- (52) a. *Tot ahir que va ploure.
 all yesterday that aux rain
 ‘It rained all day yesterday.’

- b. *Tot demà que plourà.
 all tomorrow that will.rain.3sg
 ‘It will be raining all day tomorrow.’

(Rigau 2001:94)

Following Iatridou *et al.*'s (2001) PTS theory, section 4.2 has provided a novel analysis which shows that the hodiernal interpretation is available when PrP sentences appear with time adverbials which locate an eventive or stative predicate in or throughout a PTS. The LB of this PTS is settled contextually or by time adverbials (cf. (48a)). Although this proposal is compatible with a unified semantics of the perfect, punctual time adverbials cannot be fixed on the time axis in English (cf. (46)). Although this puzzle still remains unresolved, it seems that this asymmetry has to do with other factors and, more specifically, with the nature of the English present tense (cf. Pancheva & von Stechow 2004).

5. Conclusions

The present paper has re-examined the hodiernal PrP in Catalan, which has been traditionally defined as a reading that places completed situations on the same day as the utterance. The literature has generally assumed that the PrP in Catalan is ambiguous between a hodiernal past (i.e., E,R_S) and perfect (i.e., E_R,S) interpretation (Pérez Saldanya 2002; Curell 2003; Curell & Coll 2007), but the former temporal schema cannot capture the impossibility of modifying PrP sentences with past time adverbials (cf. (8a)). Moreover, the relation E_R does not always hold: there are eventualities which are included within the denotation of the time adverbial and not all kinds of predicates reach an endpoint before the utterance time (cf. (9)). However, the nature of the event termination is not linked to tense, but to the aspectual function of the predicate (Iatridou *et al.* 2001; Janssen & Borik 2008; among others): eventive predicates reach an endpoint, cf. (18), whereas stative predicates lack such inherent termination and we can only pragmatically imply that the situation does not hold at the utterance time (cf. (22)).

This paper also provides further empirical support against the 24-hour Rule (Giorgi & Pianesi 1997; Brugger 2001; among others) in absence, cf. (25) – (26), as well as in presence of time adverbials, cf. (29) – (32), and shows that this constraint is mainly dependent on the presence of explicit temporal modification. Crucially, I claim that PrP sentences may be interpreted as hodiernal when they appear with time adverbials which locate an eventive or stative predicate in or throughout a time interval that places the eventuality on the same day as the utterance, cf. (27).

I have adopted Iatridou *et al.*'s (2001) PTS theory to argue that the hodiernal reading of the PrP is not a separate reading of the PrP since it patterns with the existential, cf. (41), and

sometimes like the universal reading, cf. (42). The LB of this PTS is settled contextually or by time adverbials (cf. (48a)) and the RB by the present tense morphology of the auxiliary verb which, unlike German and French, in Catalan is semantically loaded. The eventuality is thus still relevant for the speaker at the utterance time. Although this proposal is compatible with a unified semantics of the perfect, punctual time adverbials can be fixed on the time axis in Catalan, but not in English (cf. (46)). It seems that this asymmetry does not have to do with the PrP, but with the nature of the present tense (cf. Pancheva & von Stechow 2004).

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Teresa Maria Xiqués
 Universitat Autònoma de Barcelona
 Centre de Lingüística Teòrica (CLT)
TeresaMaria.Xiques@uab.cat

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Rule independence and rule conditioning:
Grammar competition in Old English relative clauses

Richard Zimmermann

Grammar competition usually involves structured variation with two variants. However, it is also possible that two competing rules do not involve the same initial node in a syntactic tree, but merely make a similar functional contribution. For such cases, it is possible to find diachronic variation with three variants - two for each separate rule and one for the two rules combined. It is argued that a necessary condition for the existence of overlapping forms is rule independence, i.e. the absence of conditioning factors. Old English relative clauses are analysed as an instance of grammar competition with three variants to substantiate this claim.

1. Introduction

Syntactic change is characterised by an innovative form α driving out a conservative form β . During a transitional period, both α and β co-occur but gradually shift their relative frequencies following an s-shaped curve (e.g. the change in IP headedness (Pintzuk 1999) or the loss of V-to-I movement (Ellegård 1953) in the history of English among many others). This observation can fruitfully be modelled under a competence-based approach known as “grammar competition” – two competing grammatical rules coexist within a single I-language and generate the observed structured variation between α and β (Kroch 1989, 1994).

It is possible, albeit seemingly rare, that the two competing rules do not involve the same initial node but are introduced in two distinct positions in the syntactic structure. In such a case, competition does not arise from strict mutual exclusivity, but rather from the fact that the two rules make a similar functional contribution. One would then expect diachronic variation with three instead of two variants: one for the rule generating α , one for the rule generating β , and one for the case of the two rules being applied simultaneously, generating an **overlapping form**, $\alpha \cap \beta$.

Old English (OE) relative clauses are a case in point: they can be generated by a rule that places a form of the demonstrative *se* in Spec,CP (1), or by a competing rule that merges the indeclinable relativiser *þe* with a tensed clause (2). Since the starting nodes of the two rules are different (CP and C' respectively), the overlapping form, a doubly filled COMP clause, can be generated as well (3).

- (1) *ðonne cymeð [se man [se þæt swiftoste hors hafað]] to þæm ærestan dæle*
 then came the man who the fastest horse had to the first valley
 ‘Then the man who had the fastest horse came to the first valley.’
 (coorosiu,Or_1:1.17.21.333)
- (2) ... gold-horde on þam æcereþone behyt [se man [þe hyne fint]]
 ... treasure in the field which hides the man that it finds
 ‘... a treasure in the field, which the man that finds it, hides’
 (cowsgosp,Mt_[WSCp]:13.44.890)
- (3) Eadig bið [se man [se ðe¹ gemet wisdom]]
 blessed is the men who that meets wisdom
 ‘Blessed is the man who finds wisdom.’
 (coaelive,ÆLS[Pr_Moses]:322.3053)

It is not my aim in this paper to model the structures involved, but rather to give a clear overview of the empirical facts and to offer an account for these in terms of grammar competition. I will suggest that overlapping forms are generally possible if the two base rules generating them are independent but absent if they are conditioned, and apply this analysis to OE relative clauses. First, I will explain the concepts of rule independence and rule conditioning. Next, I will demonstrate that *se*- and *þe*-relatives are in grammar competition in OE and determine factors influencing their occurrence. These observations will lead to specific predictions regarding the distribution of the overlapping *seþe*-form, which will be tested in the subsequent section. The conclusion follows.

2. Rule independence and rule conditioning

A rule is said to be independent if its range of application is not restricted by a conditioning factor.² Conversely, a rule is conditioned if it can only be applied in a restricted context. Clear-cut examples of this dichotomy can be found in (historical) phonology. For example, West-Saxon monophthongization of Proto-Germanic *[ai] (c. 400 A.D.) invariably affects all occurrences of that phoneme (Campell 1959: §132). In contrast, Old English palatalization of Proto-Germanic *[k] (c. 500 A.D.) is restricted by the phonological context – it takes place only if immediately followed by /i/, /i:/ or /j/ (Hogg 1979, Campell 1959: §426).³ Similarly, syntactic rules can be independent or conditioned. However, conditioning factors restricting

¹ *þ* (‘thorn’) and *ð* (‘eth’) are freely exchangeable graphemes in Old English. Thus, the indeclinable relativiser can be spelled both *þe* as well as *ðe*.

² I use “rule” in a deliberately vague way. Depending on one’s theoretical leanings, “rules” may be formalized as (constrained) phrase structure rules, syntactic transformations, feature strength, etc.

³ Illustrative examples of the operation of these rules are as follows:

- (i) independent sound change: Proto-Germanic *[ai] → West-Saxon [a:]
 a. Proto-Germanic **stainaz* → West-Saxon *stān* ‘stone’
 b. Proto-Germanic **aiks* → West-Saxon *āc* ‘oak’
- (ii) conditioned sound change: Proto-Germanic *[k] → Old English [tʃ] / _ [+palatal]
 a. Proto-Germanic **kildiz* → West-Saxon *cild* [tʃild] ‘child’
 vs. Proto-Germanic **kaldaz* → Anglian *cald* [kald] ‘cold’
 b. Proto-Germanic **sprēkijō* → Old English *spæc* [spæ:tʃ] ‘speech’
 vs. Proto-Germanic **sprekanan* → Old English *specan* [spekan] ‘speak’

the application of rules in syntax appear to be considerably more “unwieldy”: they often occur with exceptions, are frequently “soft” or probabilistic rather than absolute (Hawkins 1994), and are thus difficult to describe and to formalize comprehensively. A syntactic rule can be conditioned by a mere grammatical feature, particular semantic characteristics of a set of relevant lexical items, import from information structure, or phonological factors such as heaviness, among others. For instance, the rule that combines the lexical verb with its complement in Modern English uniformly generates head-initial structures; object-verb orders are categorically ungrammatical. This rule is thus independent. In contrast, subject-auxiliary inversion in Modern English declarative clauses occurs after certain fronted negative or restrictive constituents (e.g. *no sooner*, *only at night*, *rarely*), but is absent otherwise. Similarly, indirect, pronominal, animate objects in Modern French are postverbal if a “verb of thinking” is involved (*je pense à lui*, not **je lui pense* ‘I think of him’), but are regular proclitics on the finite verb elsewhere (*je lui parle*, not **je parle à lui* ‘I speak to him’) etc. These are therefore examples of conditioned rules.

If two competing rules of a syntactic change, α and β , are independent, their application will be independent in a statistical sense as well (abstracting away from priming effects). That means that their application will simply depend on the weights of the respective rules (Yang 2002: 129-134) (or the weight of some constraint of an evaluative component of the grammar, like Optimality Theory (e.g. Clark 2004)). As a consequence, rules α and β will also allow an overlapping form provided that their starting nodes are different. The probability of its occurrence should be equal to the product of the individual weights of α and β . Under this view, overlapping forms are “accidental”; they occur when both rules are independently applied simultaneously.

(4) Frequency prediction for an overlapping form based on independent rules α , β :

$$P(\alpha \cap \beta) = P(\alpha) \cdot P(\beta)$$

If, on the other hand, two rules α and β with different starting nodes have mutually exclusive conditions, they should not allow an overlapping form. The reason is that conditioned rules do not share a common context in which simultaneous application of both rules would be possible to begin with.

(5) Frequency prediction for an overlapping form based on conditioned rules α , β :

$$P(\alpha \cap \beta) = P(\alpha|A) \cdot P(\beta|A) = 0$$

$$(\text{if } P(\alpha|A) + P(\beta|A) = 1, \text{ and either } P(\alpha|A) \text{ or } P(\beta|A) = 0)$$

One well-studied example of an overlapping form created by two independent rules is Jespersen’s (1917) cycle of negation in the history of English. In Middle English, sentential negation can be encoded by cliticizing the negative particle *ne* to the finite verb, or by merging the negative adverb *not*, or by doing both. The two formal devices can be employed in exactly identical contexts, i.e. they are independent. Thus, the *ne*- and *not*-rules compete until eventually the particle *ne* is lost. The frequency prediction for the overlapping form *ne ... not* (cf. (4)) has been tested and confirmed for this change (Frisch 1997, Wallage 2007).

Time Period	# Negative Clauses	<i>ne</i>	<i>not</i>	Expected <i>ne...not</i>	Observed <i>ne...not</i>
1150-1220	235	232 (99%)	85 (36%)	84 (36%)	82 (35%)
1220-1290	184	179 (97%)	72 (39%)	70 (38%)	67 (36%)
1290-1360	421	377 (90%)	235 (56%)	210 (50%)	191 (45%)
1360-1430	746	139 (19%)	717 (96%)	134 (18%)	110 (15%)
1430-1500	343	2 (1%)	341 (99%)	2 (1%)	0 (0%)

Table 1: Frequency of Middle English negation through the negative clitic *ne*, the adverb *not*, and their overlapping form, in declarative clauses (based on Frisch 1997:32, Table 1)

As shown in Table 1, the frequency of the overlapping form *ne ... not* can be estimated with astonishing accuracy as the product of the observed relative frequencies of *ne* and *not* alone.

An example of the absence of an overlapping form under rule conditioning is provided by Middle English relative clauses. The functional item *that* became a generalized relativiser in early Middle English (Suárez 2012) so that “in the thirteenth century *that* stood practically alone as a relativiser. It was used in restrictive as well as non-restrictive clauses, with animate as well as inanimate antecedents.” (Fischer et al. 2001: 91). Subsequently, new *wh*-elements are introduced into the language as relative operators, perhaps as an extension from generalising free relatives (6), which exist unvaryingly throughout early English.

- (6) & þa þider urnonswa hwelc swa þonne gearo wearþ
 And then thither ran so which so then ready was
 ‘and they then ran there, whoever was then ready’
 (cochronA-CC, ChronA_[Plummer]:755.16.524) (c. 900 A.D.)

Crucially, from the earliest period on, Middle English *wh*-relatives (predominantly *which* and *whom*) were largely non-restrictive. I examined a sample of 200 Middle English *which*-relatives, and found that more than 80% of them were non-restrictive. Conversely, as Romaine (1984: 102) points out, *that* begins to be limited to restrictive clauses as soon as *wh*-pronouns adopt a relative function. In a more recent study, Diertani (2008) examines Middle English relativization strategies as a function of antecedent type – bare quantifier antecedents favour a restrictive reading of the relative clause, whereas proper names favour a non-restrictive reading – and finds that *wh*-pronouns are never found with any appreciable frequency in the former context while the frequency of *that* in the latter context consistently declines. If the application of the *wh*- and *that*-rules are indeed strongly conditioned by restrictiveness, the prediction following from (5) would be that the overlapping “*wh that*” form is absent from the language. In order to test this prediction, I collected Middle English relative clauses in which the relativized element is the subject or an object from Kroch & Taylor (2000) and sorted them by relativization strategy.

Time Period	# Relative Clauses	<i>that</i>	<i>wh</i>	Expected <i>wh that</i>	Observed <i>wh that</i>
1150-1250	951	948 (100%)	3 (0%)	3 (0%)	0 (0%)
1250-1350	1998	1931 (97%)	78 (4%)	75 (4%)	11 (1%)
1350-1420	4211	3979 (94%)	270 (6%)	255 (6%)	38 (1%)
1420-1500	2109	1447 (69%)	668 (32%)	458 (22%)	6 (0%)

Table 2: Frequency of Middle English relativization through *that*, *wh*-elements, and their overlapping form

Table 2 shows that, as expected, the overlapping form is extremely infrequent and cannot be estimated based on the relative frequencies of *that*- and *wh*-relatives alone. Claims to the effect that Middle English freely allows doubly filled COMP relatives in the fourteenth and fifteenth century (e.g. Keyser 1975) are not true; such clauses exist only very sporadically (7) and only in the early periods, perhaps before rule conditioning became absolute.

- (7) the person of Syn Stevynnys in Walbroke, *whyche that* was one of the same fore sayde traytours, deyde in the Toure for sorowe.
 ‘The parson of St Stephen's in Walbrook, who was one of the aforementioned traitors, died in the Tower out of sorrow.’
 (CMGREGOR,184.1301) (c. 1450 A.D.)

In summary, overlapping forms are expected to occur if the individual rules are not restricted by conditioning factors while they are absent if the individual rules are applicable only in mutually exclusive contexts.

3. Grammar competition and rule conditioning in Old English relative clauses

I will now turn to the analysis of OE relative clauses. It will first be argued that the OE *se*- and *þe*-relativization rules compete with each other. Subsequently, I will identify conditioning factors on the occurrence of *se*- and *þe*-relatives, from which I will derive a frequency prediction for the overlapping *seþe*-form.

3.1. Grammar Competition between *se* and *þe*

In this section, I will present evidence for the claim that the two principal OE relativizing forms, *se* and *þe*, are in grammar competition. Firstly, I measured, as the dependent variable, the occurrence of *se* and *þe* relativization as a function of time/period in three different genres: prose texts, documents, and poetry. The frequencies of *se*- and *þe*-relatives were measured as a percentage of all relative clauses, including relativization with zero operators, *that*, possessive determiners (the equivalent of Modern English *the boy whose sister I like*), adverbial relatives (the equivalent of Modern English *the reason why he came, the time when you slept*, etc.) and others. The data for the first two genres were collected from Taylor et al.

(2003), while the data for the poetry came from Pintzuk & Plug (2001) and various early Middle English poems.⁴ The results are presented in Table 3.

Genre	Time Period	# Relative Clauses	<i>se</i>	<i>þe</i>
prose	9th c.	10033	1953 (19%)	4075 (41%)
	10th c.	4798	523 (11%)	2614 (54%)
	11th c.	12856	1172 (9%)	7336 (57%)
documents	to 950	88	11 (13%)	49 (56%)
	after 950	162	11 (7%)	112 (69%)
poetry	Old English	1274	200 (16%)	341 (27%)
	Middle English	260	7 (3%)	102 (39%)

Table 3: Frequencies of *se* and *þe*-relatives as a percentage of all relative clauses

The frequency of *se*-relatives falls consistently across all three genres. The decline is therefore not just a genre-specific effect. Furthermore, the frequency of *þe*-relatives increases consistently. This finding suggests that *se*-relatives drop out of the language specifically at the expense of *þe*-relatives and not because of some other relativization strategy.

Secondly, it is a hallmark of grammar competition that a change may be actuated sequentially in different linguistic contexts, but that the rate of replacement of one grammatical rule by another will subsequently be identical in all of them. In other words, the graphs for different linguistic environments plotting the frequencies of an innovative against a conservative form will show identical slopes but may show different intercepts. This postulate is known as the **Constant Rate Hypothesis** (Kroch 1989). If the rules generating *se*- and *þe*-relativization are indeed in a state of grammar competition, one would thus expect constant rate effects. One way of testing the constant rate hypothesis involves comparing factor weights from variable rules analyses: “if a study reports a series of multivariate analyses for different time periods, and the contextual effects are constant across these analyses, the rate of change of each context measured separately would necessarily be the same” (ibid.: 206).

Therefore, I used the data collected for the variable rules analysis to identify conditioning factors in Old English relatives (see below) and compared the factor weights for the factor group ‘clause type’ separately for the three time periods ‘9th century’, ‘10th century’ and ‘11th century’. There were three variants for this factor group: main clauses, conjoined main clauses and subordinate clauses. This three-way distinction has become standard practice in OE syntax as it is known to be a relevant predictor of the frequency of various constructions such as V-to-C movement or I-final headedness (e.g. Kemenade 1987, Traugott 1992). The results of this investigation are presented below.

⁴ *Body and Soul* (Buchholz 1890 : 1-10), *The Grave* (Buchholz 1890: 11), *Poema Morale* (Morris 1873 : 220-32), *The First Worcester Fragment* (Brehe 1990: 530), *Pater Noster* (Morris 1868: 55-71), *A Good Orison of Our Lady* (Morris 1868: 191-99).

Time Period	Clause Type	% <i>se</i> -relatives	Total	Factor Weight
9 th century	main	38.9	1925	0.54
	conjoined main	29.9	1110	0.48
	subordinate	29.7	2639	0.48
10 th century	main	17.8	1223	0.53
	conjoined main	16.8	642	0.52
	subordinate	15.4	1033	0.46
11 th century	main	15.5	3401	0.55
	conjoined main	12.5	1953	0.49
	subordinate	11.1	2593	0.45

Table 4: Effect of clause type on the distribution of *se*- (vs. *þe*-) relatives in three OE periods

Table 4 reveals a weak clause type effect. Main clauses show the highest probability of the occurrence of *se*-relative clauses, subordinate clauses are least likely to do so and conjoined main clauses pattern in between. As expected, the effect of this contextual factor is relatively constant across the three periods (range of main clauses: 2; range of conjoined main clauses: 4; range of subordinate clauses: 3). Put differently, the development of the overall rate of use of *se*- vs. *þe*-relatives is independent of the contextual effect induced by ‘clause type’ on its use. This finding supports the constant rate hypothesis and thus the assumption that the underlying OE *se*- and *þe*- relativization rules compete.

3.2. Rule conditioning on *se* and *þe* relativization

I will now test whether the two basic relativization rules, generating *se*- and *þe*-relatives respectively, are applied independently or are subject to conditioning factors. As explained earlier, such an investigation is necessary in order to be then in a position to make predictions regarding the relative frequency of the overlapping form in OE relative clauses.

3.2.1. Multivariate analysis

Methodology

I carried out a variable rules analysis with VARBRUL (GoldVarb, Robinson et al. 2001), investigating the occurrence of *se* vs. *þe*-relatives as the variants of the dependent variable and (a) ‘antecedent type’, (b) ‘clause type’, (c) ‘position of the relative clause’ and (d) ‘period’ as independent variables (factor groups). The first independent variable had fifteen variants: ‘bare proper names’, ‘complex proper names’, ‘bare negative quantifiers’, ‘complex negatively quantified DPs’, ‘bare universal quantifiers’, ‘complex universally quantified DPs’, ‘bare existential quantifiers’, ‘complex existentially quantified DPs’, ‘DPs containing a superlative’, ‘DPs containing a possessive’, ‘bare determiner’, ‘complex DPs’, ‘bare personal pronouns’, ‘other DPs with a nominal’, and ‘other’. These categories were defined to be mutually exclusive. If an antecedent contained material to be appropriate for more than one category, it was included only in the category mentioned earlier in the above list. The second factor group had three variants: main clauses, conjoined main clauses and subordinate clauses. The third variable was coded either as ‘in situ’ if the relative clause immediately followed the antecedent or as ‘extraposed’ if material intervened between antecedent and relative clause. Finally, the factor group ‘period’ included the variants ‘9th century’, ‘10th century’ and ‘11th century’ depending on the date of composition of the relevant texts.

The material was collected from Taylor et al. (2003) and automatically coded using the coding function of CorpuSearch 2 (Randell 2004). On account of certain technological limitations, only the first relative clause per token could be coded. This means that multiple relative clauses modifying a single or different antecedents as well as conjoined relative clauses could not be included. All in all, 16,519 tokens were analysed. The results of this study are shown in Table 5 below.

Total N=16,519		Corrected Mean: 0.156	
	Factor Weight	% SE-relatives	N
Antecedent			
bare universal	0.936	70.3	313
complex name	0.864	55.1	405
complex existential	0.863	57.9	594
bare nominal	0.813	46.6	654
bare name	0.789	44.3	476
possessive	0.722	35.4	1267
other	0.718	33.1	904
bare existential	0.698	31.6	38
superlative	0.674	28.9	90
bare pronoun	0.505	17.6	301
complex negative	0.445	15.8	133
bare determiner	0.408	13.2	4012
bare negative	0.379	12.5	24
complex DP	0.342	9.9	6057
complex universal	0.324	8.6	1251
<i>Range</i>		61	
Clause Type			
main	0.540	22.8	6549
conjoined main	0.487	18.2	3705
subordinate	0.466	19.7	6265
<i>Range</i>		7	
Position			
in situ	0.463	17.5	12666
extraposed	0.619	30.7	3853
<i>Range</i>		16	
Period			
9th c.	0.695	32.7	5674
10th c.	0.458	16.7	2898
11th c.	0.371	13.4	7947
<i>Range</i>		33	

Table 5: Factors significant to the occurrence of *se*-relatives in OE

Evaluation

The applied dependent variable in Table 5 is *se*-relatives. For all variants, a factor weight larger than 0.5 indicates a preference for *se*-relatives, and, conversely, a value smaller than 0.5 indicates that *se*-relatives are disfavoured. The low corrected mean of 0.156 indicates that *se*-relatives are dispreferred overall. All independent variables turned out to be significant.

Restrictiveness

Se-relatives are significantly more likely to occur with antecedents containing elements such as proper names, or existential quantifiers, than with antecedents containing, for example, determiners or universal quantifiers. This finding can plausibly be accounted for by the assumption that *se*-relatives are favoured in non-restrictive contexts while *þe*-relatives tend to occur in restrictive relative clauses.

Proper name antecedents pick out a unique individual and thus are not usually restricted further by a relative clause (8a). Similarly, relative clauses modifying existentially quantified DPs (8b) or DPs without any overt quantifier or determiner (8c) are more likely to receive a non-restrictive than restrictive interpretations in the surviving OE text material. The OE existential quantifier tends to restrict the potential referents of the antecedent sufficiently (similar to Modern English ‘a certain X’) and bare nominals tend to be introduced as discourse new elements, which do not typically occur with relative clauses restricting their reference further (similar to Modern English indefinite DPs). The preference for the *se*-form in these contexts can thus plausibly be explained in terms of non-restrictiveness of the relative clause.

(8) a. complex name

on þyses cinges dagum *Laurentius ercebiscop* se was on Cent æfter Augustine
 in this king’s days Laurentius archbishop who was in Kent after Augustine
 forþferde iiii Nonae Februarii
 died four Nones February

‘In this king’s days, Archbishop Laurentius, who was [archbishop] in Kent after Augustine, died on the second of February.’

(cochronA-8,ChronA_[Plummer]:616.8.287) (c. 1100 A.D.)

b. complex existential (existentially quantified DP)

he ongan onbærnan *sum deofolgild* þæt⁵ mid þam hæðenum mannum
 he began burn some devil-offering which among the heathen men
 swiðeweorð & mære wæs.
 very worthy and great was.

‘He began to burn a certain idol, which was very valuable and great to the heathens.’

(coverhom,LS_17.2_[MartinVerc_18]:155.2319) (c. 970 A.D.)

⁵ Here, *þæt* is accusative, neuter, singular of *se*.

c. bare nominal (DPs without any overt quantifier or determiner)

& he þer gehadode *godne* *wer* se wes mid ciriclicum þeodscipum geseted
 and he there ordained good man who was with churchly people set
 ‘and there he ordained a good man, who was given an ecclesiastical community’
 (cohad,LS_3_[Chad]:31.22) (c. 850 A.D.)

In contrast, in naturally occurring language data, relative clauses tend to receive a restrictive rather than a non-restrictive reading if they modify definite DPs (9a), bare determiners (9b), universally quantified DPs (9c) or other antecedents that are unlikely to pick out unique referents and thus easily occur with further restrictive modification (e.g. negative quantifiers, pronouns, etc.). The fact that these antecedents tend to occur with *þe*-relatives can thus be reduced to restrictiveness of the relative clause as the underlying conditioning factor.

(9) a. complex determiner (complex expression involving a determiner)

Se apostol Paulus manode *ða* *cristenan* þe he sylf ær to geleafan
 The apostle Paul admonished the Christians who he self earlier to faith
 gebigde
 converted
 ‘The apostle Paul admonished those Christians who he had himself earlier converted.’
 (coaelive,ÆLS_[Auguries]:1.3532) (c. 1000 A.D.)

b. bare determiner

se þe wunaþ on ðære soðanlufan, he wunað on Gode
 that(one) who lives in the true faith, he lives in God
 ‘He who lives in the true faith lives in God.’
 (coverhom,HomS_11.2_[ScraggVerc_3]:9.393) (c. 970 A.D.)

c. complex universal (universally quantified DP)

Ac *ælc* *mon* þe allunga underþeoded bið unþeawum forlæt his sceppend
 But each man who entirely subdued is vices lets his creator
 ‘But each man who is entirely subdued by vices loses his creator.’
 (coboeth,Bo:30.69.30.1296) (c. 900 A.D.)

Antecedents with bare universal quantifiers are a striking exception to the tendency that *se* occurs in non-restrictive and *þe* in restrictive relative clauses. They are modified more naturally by restrictive relative clauses than by non-restrictive ones (cf. *everything that I know*, *#everything, which I know*). Nevertheless, bare universal quantifiers are much more likely to occur with *se*- than with *þe*-relatives (10).⁶

⁶ A similar phenomenon can be observed in Modern German, where the standard relativiser is the definite article but relative clauses modifying the bare universal quantifier *all* are introduced by *what* (*alles was ich habe* ‘everything that I have’, **alles, das ich habe*).

- (10) Ðæt hwæðre æðelice ongetan meah tonealle þa⁷ þæt cuðon
 that however easily understand could all who that knew
 ‘However, everybody who knew it could easily understand that.’
 (cobede, Bede_4:26.348.29.3518) (c. 890 A.D.)

There is in fact some scholarly consensus that restrictiveness is a conditioning factor on OE relative clauses. Andrew (1940), Mitchell (1985: §§2252-2287) and Troup (2010) are just a few scholars who have extensively commented on the function of relative clauses and their effect on the realization of the relativizer. They all agree that *þe* tends to introduce restrictive and *se* non-restrictive relative clauses.

The hypothesis that *se*- and *þe*-relativization correlate with restrictiveness is further supported by an interaction effect between restrictiveness and negation. Non-restrictive relative clauses must lie outside the scope of sentential negation and are therefore ungrammatical if they modify an antecedent that occurs in a negative clause (at least in realis contexts, e.g. Arnold 2004).

- (11) a. I have a car. It is red.
 b. I have a car, which is red.
 c. #I don't have a car. It is red.
 d. *I don't have a car, which is red.

If *se*-relatives favour non-restrictive relative clauses, one would expect that this relativizing strategy is dispreferred in negative context. This expectation is borne out, as shown in Table 6.

	<i>se</i>	<i>þe</i>
positive context	1930	6671
negative context	22	438

Chi-square=80.54, df=1, p<0.0001

Table 6: Distribution of *se* and *þe* relatives (in situ) modifying antecedents in tokens with and without sentential negation

Other factors

Another contextual factor that has an effect on the relativization strategy in OE is ‘position of the relative clause.’ *Se* is more likely to occur if the relative clause is extraposed than if it is in situ. This factor, too, has been identified and commented on before (e.g. Mitchell 1985: §§2288-2303, Suárez 2006).

Perhaps surprisingly, ‘clause type’ was also identified as a significant factor by the VARBRUL program. Main, conjoined main and subordinate clauses form a hierarchy such that *se*-relatives are more likely in the former than in the latter (see above). However, all in all, this is a very weak effect.

Finally, as expected, ‘period’ has a significant effect on the occurrence of *se*- vs. *þe*-relatives. As time progresses, *se*-relatives become increasingly less productive.

⁷ Here, *þa* is nominative, plural of *se*.

3.2.2. Rule Conditioning

I assume that the different linguistic contexts thus identified, restrictiveness in particular, were much more rigid conditioning factors at some earlier stage of the Old English language. Subsequently, they began to weaken; *þe*-relatives gradually encroached upon linguistic contexts originally limited to *se*-relatives, and by the time of transmitted Old English, the formerly rigid conditions had become mere tendencies (Mitchell 1985: §2283). If this is true, the weakening of linguistic conditions should be measurable with the same methodology used earlier to show that the effect of the factor ‘clause type’ is constant across the three OE periods (see above). In contrast to the earlier investigation, however, the factor weights for ‘antecedent’ and ‘position’ should gradually shift towards 0.5, i.e. the value for which *se*-relatives are neither favoured nor disfavoured. Table 7 presents the relevant data for the factor group ‘position.’

Time Period	Position	% <i>se</i> -relatives	Total	Factor Weight
9 th century	in situ	27.9	4183	0.45
	extraposed	46.2	1491	0.64
10 th century	in situ	14.4	2277	0.47
	extraposed	25.3	621	0.63
11 th century	in situ	11.7	6206	0.48
	extraposed	19.4	1741	0.59

Table 7: Effect of position of the relative clause on the distribution of *se*- (vs. *þe*-) relatives in three OE periods

The data in table 7 is compatible with the hypothesis that the effect of the contextual factor ‘position’ is weakened rather than constant across the three periods since the factor weights develop coherently towards a value of 0.5. However, the ranges between the factor weights are still very low (range of in situ: 3; range of extraposed: 5). Regarding the factor group ‘antecedent’, factor weights for antecedents that presumably favour modification by restrictive relative clauses generally stay very low (definite DPs, bare pronouns, universal quantification, etc.). Thus, restrictive context is not strengthened as a conditioning factor for the occurrence of *þe*-relatives, but it does not appear to be measurably weakened either. Factor weights for antecedents that are more likely to appear with non-restrictive relative clauses, on the other hand, drop quite sharply, as illustrated in Table 8. The factor weights for existentially quantified DPs are, however, an exception in that they remain quite constant.

Time Period	Antecedent	% <i>se</i> -relatives	Total	Factor Weight
9 th century	complex name	86.5	170	0.94
	bare nominal	73.8	221	0.85
10 th century	complex name	55.2	29	0.90
	bare nominal	41.1	124	0.82
11 th century	complex name	29.1	206	0.79
	bare nominal	29.4	309	0.79

Table 8: Effect of two antecedent types on the distribution of *se*- (vs. *þe*-) relatives in three OE periods

The data in Table 8 suggests that the conditioning effect of non-restrictiveness on the preference for *se*-relatives does indeed weaken over time since the factor weights for complex names and bare nominals coherently decline across the three OE periods (range of complex name: 15; range of bare nominal: 6).

If this analysis is correct, the significant effects of contextual factors like ‘restrictiveness’ are not the result of a sequential actuation of the change, but remnants of earlier, more rigid conditions. The rate of change is not constant across all linguistic contexts, but speeds up in cases where non-restrictiveness as a conditioning factor is gradually lost. In fact, I would go so far as to suggest that grammar competition between the *se*- and *þe*-rules might be a direct consequence of the loss of their respective conditioning factors.

3.3. Frequency prediction for the overlapping *seþe*-form

Putting together the findings of the previous two sections, the OE rules generating *se*- and *þe*-relatives appear to be a hybrid case between independent rules and conditioned rules. The two rules seem to compete with each other and the effect of the contextual factor ‘clause type’ is constant across the OE period, suggesting rule independence. At the same time, the effects of ‘restrictiveness’ and possibly also ‘position of the relative clause’ appear to be gradually neutralized, which indicates limited and weakening rule conditioning.

This analysis leads to the following prediction for the frequency of the overlapping *seþe* form. The frequency of $P(se \cap þe)$ should lie between 0, expected under rule conditioning, and $P(se) \cdot P(þe)$, which would result from rule independence, precisely because the two rules are neither absolutely independent nor absolutely conditioned. Moreover, as the conditioning factors gradually wear off, the frequency of the overlapping form should gradually approach the values expected under rule independence.

4. Frequency of OE *seþe*-relatives

I will now test the frequency predictions for OE *seþe*-relatives developed in the previous section. In order to do this, I collected *se*-, *þe*- and *seþe*-relatives for all contexts in OE prose texts as well as for three more specific subcontexts: proper names, bare nominal and definite DP antecedents. As in the previous study, the data was taken from Taylor et al. (2003) and categorized into three different periods: 9th century, 10th century and 11th century texts. An example set of the three relative forms is given for proper name antecedents in (12).

(12) a. proper name antecedent, *se*-relative

On þam geare *THOMAS* se wæs gecoran biscop to Eferwic com to Cantwareberig
in that year Thomas who was chosen bishop to York came to Canterbury
‘This year, Thomas, who was chosen bishop of York, came to Canterbury.’
(cochronA-7, ChronA_[Plummer]:1070.6.1465)

b. proper name antecedent, *þe*-relative

Ða geseah *Iudas* þe hýne belæwde þæt he fordemed wæs
then saw Judas who him betrayed that he damned was
‘Then Judas, who had betrayed him, saw that he was condemned.’

(cowsgosp,Mt_[WSCp]:27.3.1993)

c. proper name antecedent, *seþe*-relative

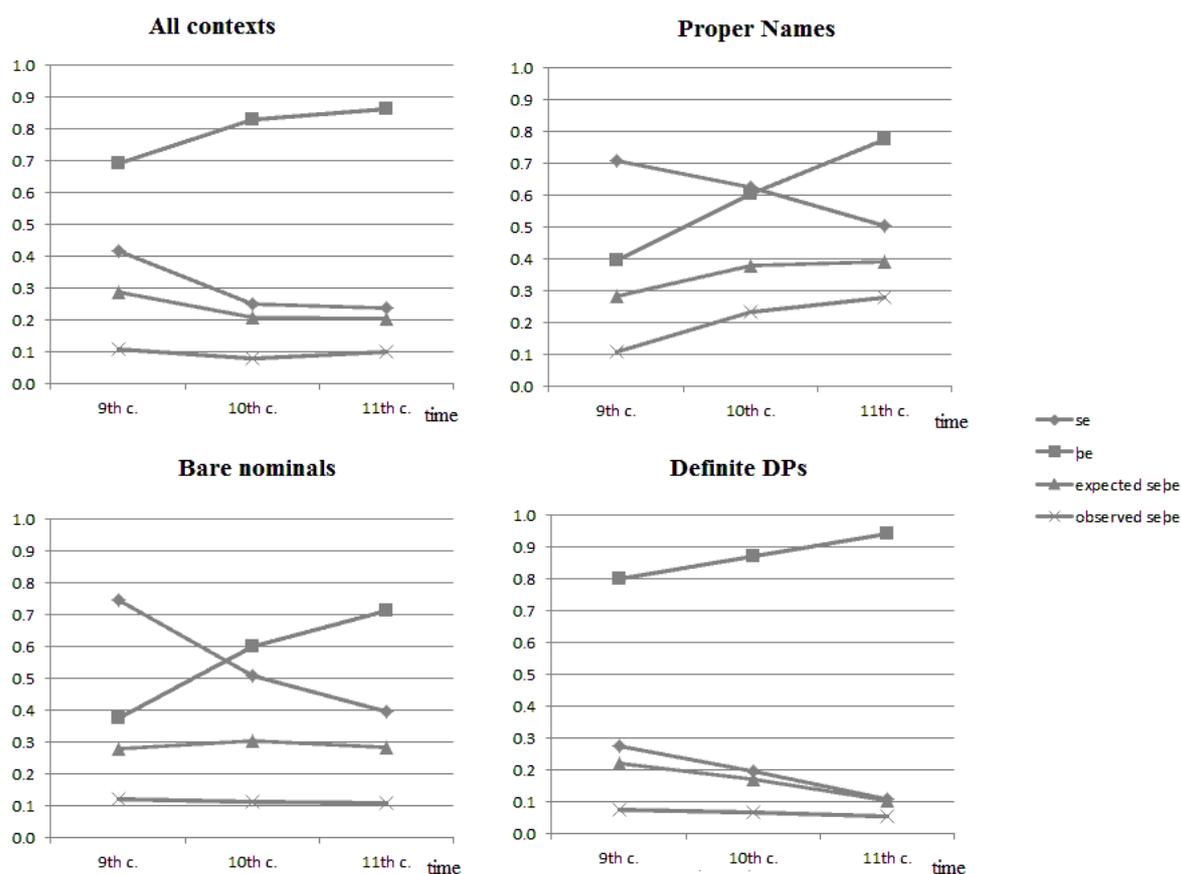
He oncneow *Lazarum* þone⁸ þe he ær forseah
 he recognized Lazarus whom that he earlier saw
 ‘He recognized Lazarus who he had seen earlier.’
 (cocathom1,ÆCHom_I, 23:368.98.4603)

The results of this investigation are shown in Table 9 and illustrated in Graphs 1-4.

Context	Time Period	# Relative Clauses	<i>se</i>	<i>þe</i>	Expected <i>seþe</i>	Observed <i>seþe</i>
All clauses	9th c.	6691	2792 (42%)	4634 (69%)	1934 (29%)	735 (11%)
	10th c.	3254	815 (25%)	2702 (83%)	677 (21%)	263 (8%)
	11th c.	9140	2162 (24%)	7888 (86%)	1866 (20%)	910 (10%)
Proper names	9th c.	186	132 (71%)	74 (40%)	53 (28%)	20 (11%)
	10th c.	86	54 (63%)	52 (60%)	33 (38%)	20 (23%)
	11th c.	349	176 (50%)	271 (78%)	137 (39%)	98 (28%)
Bare nominals	9th c.	294	219 (74%)	111 (38%)	83 (28%)	36 (12%)
	10th c.	153	78 (51%)	92 (60%)	47 (31%)	17 (11%)
	11th c.	401	159 (40%)	286 (71%)	113 (28%)	44 (11%)
Definite DPs	9th c.	2672	734 (27%)	2139 (80%)	588 (21%)	201 (8%)
	10th c.	1173	231 (20%)	1022 (87%)	201 (17%)	80 (7%)
	11th c.	3644	403 (11%)	3433 (94%)	380 (10%)	192 (5%)

Table 9: Frequency of OE relativization through the forms *se* and *þe*, and the expected and observed frequencies of their overlapping form *seþe*, in four different contexts

⁸ Here, *þone* is accusative, masculine, singular of *se*.



Graphs 1-4: Frequency of OE relativization through the forms *se*, *be*, expected and observed frequencies of and their overlapping form *sepe* in four different contexts

The results of this study are as follows. Firstly, the overlapping *sepe*-form exists in all contexts with an appreciable frequency. Furthermore, in all contexts, the overlapping form is considerably less frequent than what would be expected if the two base rules were completely independent. The average difference between expected and observed *sepe*-relatives is 13% for all clauses, 14% for proper name, 17% for bare nominal and 9% for definite DP antecedents. These findings are fully compatible with the hypothesis that the OE *se*- and *be*-relative rules are partly independent and thus allow doubly filled COMP relatives and partly conditioned, inhibiting overlapping forms.

Secondly, the findings also show that, in general, expected and observed frequencies of *sepe*-relatives approach each other as time passes. The differences between expected and observed values decline significantly from 18% to 10% for all clauses, from 17% to 9% for proper name antecedents and from 13% to 5% for definite DPs; solely bare nominal antecedents remain relatively stable.⁹ For all clauses combined, there is actually a slight increase in *sepe*-forms in the eleventh century, which could be interpreted as conditioning factors having weakened so much that the *se*- and *be*-rules, now much more independent, were more likely to be applied simultaneously than in earlier centuries despite the fact that one of the base rules was becoming extinct. All in all then, these findings support the claim

⁹ 9th vs. 11th century: all clauses: Chi-Square: 17.738, df=1, p<0.01; proper names: Chi-Square: 4.823, df=1, p<0.05; definite DPs: Chi-Square: 10.57, df=1, p<0.01; bare nominals: Chi-Square: 0.163, df=1, p>0.05.

that contextual factors like ‘restrictiveness’ do not influence the rules generating *se-* and *þe-* relatives uniformly across the three periods but weaken over time.

5. Conclusion

In this paper, I suggested that grammatical rules can apply independently of contextual factors or be conditioned on them. Only the former type allows simultaneous rule application and thus overlapping forms. If contextual factors influence the distribution of two competing forms as a result of sequential activation of a change, their effect will be constant across the period of change (rule independence leading to constant rate effects). On the other hand, contextual factors can also be at first rigid determinants for the distribution of two forms (rule conditioning), but then weaken over time so that their effect on the distribution of two competing forms declines. I presented a case study of OE relative clauses, which were analysed as falling in between the two extremes of rule independence and rule conditioning to illustrate and substantiate these assumptions.

There is ample room for future research. Firstly, the claims made here should be tested against other syntactic constructions that allow overlapping forms. Specifically, it would be predicted that overlapping forms are possible only in contexts where no conditioning factors are discernible. Secondly, rule conditioning could be tested in a phenomenon that mirrors the development of OE relative clauses: rather than the loss of conditioning factors instigating competition between two forms, there might be initial rule independence leading to grammar competition with subsequent conditioning during a period of change. This is not an implausible idea since it is known that children can impose new conditioning factors on variable input during the acquisition process (e.g. Hudson Kam & Newport 2005). The conditioning of German verb-second vs. verb-final orders on clause type may be such a case. Finally, OE relative clauses themselves require more attention. There may be more contextual factors than were identified here (e.g. heaviness of the relative clause, grammatical function of the relativised constituent, etc.). Furthermore, the descriptive generalizations need to be formally implemented in a theoretical grammar framework.

If the hypothesis put forward here – that overlapping forms are accidental by-products of simultaneous independent rule application governed by statistical principles – is correct, it would follow that (i) grammar competition operates on individual rules rather than entire grammars or parameters (contra Yang 2002) and (ii) that rules in competition have associated with them a weight determining their relative probability of application. Both consequences have profound implications for formal language modelling as well as our understanding of language change in general.

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Richard Zimmermann
University of Geneva
Richard.Zimmermann@unige.ch

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