



THE PROBLEM WITH  
**SYMBOLIC BEHAVIOUR**

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**ABSTRACT:**

In recent years there have been multiple high impact publications operating the term ‘Symbolic Behaviour’, particularly in relation to the Neanderthals. The term is often regarded as one of the hallmarks of cognitive modern behaviour in human evolution. Yet is often unclear why researchers label certain artefacts as ‘symbols’. This paper explores the generalised inferential chain that leads from an ‘archaeological artefact’ to a ‘symbol’. An influential paper by d’Errico et al. (2005) will be used as a case study to form the basis of this generalised inferential chain. In many cases there is assumed that ornaments or engravings are symbols. However, symbols as semiotic devices function on the highest level of abstraction; symbols are arbitrary and completely dependent on social context and have no relation to physical reality. Reconstructing social context is impossible for the Palaeolithic, which makes the term ‘Symbolic Behaviour’ inoperable in human cognitive evolutionary research. Some attention is also paid to the research history out of which the term emerged, laying bare some structural problems in palaeoanthropology.

**KEYWORDS:**

Behavioural modernity, human cognitive evolution, symbolism in the palaeolithic, semiotics in archaeology, shell beads

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## INTRODUCTION

In 2021, archaeological finds from the Middle Palaeolithic were discussed in two high impact papers (Leder et al., 2021; Pitarch Martí et al., 2021). The finds in question are an engraved bone (Leder et al., 2021) and pigment which is interpreted as a cave painting (Pitarch Martí et al., 2021). Both authors argue that these finds are evidence for Neanderthal's capacity for 'Symbolic Behaviour' (further abbreviated as SB). The concept of SB (i.e. behaviour largely mediated by symbols) has been dominant in the discussion about human cognitive evolution since the late 2000's (e.g. Bar-Yosef Mayer et al., 2009; Bouzouggar et al., 2007; d'Errico et al., 2005, 2009; Henshilwood et al., 2009; Vanhaeren et al., 2006), as one of the core attributes of 'modern' humans. In more recent years, other hominins (particularly the Neanderthals) have also been endowed with SB (Rodríguez-Hidalgo et al., 2019; Rodríguez-Vidal et al., 2014; Romandini et al., 2014; Prévost et al., 2021; Zilhão et al., 2010). However, in describing these alleged 'symbols' many scholars do not provide a solid explanation as to why precisely these artefacts are interpreted as symbols. This is somewhat disconcerting, since these 'symbols' are usually accompanied by very impactful conclusions about human cognitive evolution and hominin behaviour.

This paper explores the validity of the inferential chain that leads from 'archaeological artefact' to 'a symbol' (the symbol being the evidence for SB). An influential paper by d'Errico et al. (2005) will be used as a case study to create a more generalised inferential chain. Close attention is paid to understand what exactly 'a symbol' is, how they function as semiotic devices, and how (and if) archaeologists are able label archaeological artefacts as 'symbols'. In other words; Is the term 'Symbolic Behaviour' operable in an archaeological context? To be clear; this paper does not take a stance in the capacity for symbolic thought and/or behaviour in specific hominin species. It simply addresses some perceived problems in the inferential process that leads from the archaeological artefact to generalised conclusions about a capacity for SB in hominin species.

## SYMBOLIC BEHAVIOUR AND MODERN BEHAVIOUR

The term Symbolic Behaviour (SB) should not be discussed without addressing its historic context. The phrase emerged from a long (particularly Anglophone) tradition, which is unfortunately too extensive to discuss here in its entirety. The connection between SB and 'behavioural modernity' will however be shortly touched upon, as it is important to understand why SB became such an influential term.

The term 'Modern Behaviour' (MB) or 'Behavioural Modernity' is a product of the *Human Revolution* model; the idea of a sudden change in the cognitive makeup of 'archaic' *Homo sapiens* (some of the main proponents of which were Binford, 1989; Donald, 1991; Klein, 1995; Lindly & Clark, 1990; Mellars, 1989; Mithen, 1996; Stringer & Gamble, 1993). In most iterations, SB plays a large part in becoming/being a 'modern' human. The *Human Revolution* idea was later dispelled, most notably by McBrearty and Brooks (2000), who convincingly argued that the 'modern package' was more like a mosaic that slowly gathered over time, instead of emerging all at once. Yet, the term 'Modern Behaviour' (and thus the implied dichotomy 'ancient vs. modern') persisted. Roebroeks and Corbey (2001) have explained this as a need for neatly defining 'in-groups' (modern humans, humans 'like us') and 'out-groups' (archaic humans, humans not quite 'like us'). They built on the work of Cartmill (1990); an early critic of the anthropocentrism that according to him seems to dominate palaeoanthropology. With a lack of context, the term eventually started to lack a consensus of what 'modernity' exactly entailed (Chase, 2003; Nowell, 2010). It is in this context that scholars started looking for alternatives (see e.g. Corbey, 2005, 92-120; Garofoli, 2016; Porr & Mathews, 2017 for an overview of the 'Modern Behaviour' discussion specifically).

In the late 2000's the consensus arose that the most defining characteristic of Behavioural Modernity was in fact Symbolic Behaviour. Marean (2007, 367) stated for example; "there is a growing consensus around a definition [of modern behaviour] that has symbolic capacity at its core." (see also Nowell, 2010). In the 2010's the 'in-crowd' was defined by evidence of a capacity for SB; the term MB got distilled into its core and most defining component; SB. It effectively replaced MB in most literature as the marker that defined 'humanness', and attention shifted towards SB. While the term SB arguably has some of the same problems that its predecessor had (mainly, the hard-lining between 'symbolic' and 'not-symbolic', 'like us' and 'not like us'), its main problem lies in properly inferring an 'archaeological artefact' into a 'symbol'.

## INFERENCES

As stated earlier; this paper will use the influential d'Errico et al. (2005) publication as a case study to reconstruct the 'artefact-to-symbol' inference. The meticulous inference chain presented by d'Errico et al. (2005) is often cited and repeated many times in similar contexts and is presented as evidence for 'Symbolic Behaviour' in not only early *Homo sapiens*, but to other hominins as well (e.g. Leder et al., 2021; Rodríguez-Hidalgo et al., 2019; Rodríguez-Vidal et al., 2014; Romandini et al., 2014;

Pitarch Martí et al., 2021; Prévost et al., 2021; Zilhão et al., 2010).

d’Errico and colleagues(2005) describe a collection of perforated tick shells, found in Blombos Case (South Africa), dating to the MSA.

Their inference chain looks like this:

- a) Tick shells were collected by MSA *Homo sapiens*
- b) The tick shells were perforated
- c) The perforation were manmade and not caused by taphonomic processes
- d) The manmade perforations were made close to the lip; they were not made to open the shells
- e) Use-wear indicates contact with skin, thread and other shells

**Conclusion/interpretation 1:** The perforated shells are beads.

- f) Traces of ochre was found on the beads
- g) The beads are clustered, indicative of ‘beadworks’

**Conclusion/interpretation 2:** The beads were worn as ornaments

h) According to the literature cited (d’Errico et al. 2005; the literature cited by d’Errico et al. is later discussed in this paper) ornaments are unambiguously symbols

**Conclusion/interpretation 3:** The tick shell beads are indicative of SB and therefore MB

i) Syntactical language is the only means of communicating symbolic codes (ibid. p. 19)

**Conclusion/interpretation 4:** The Blombos cave inhabitants had fully syntactical language

Conclusion/interpretation 4 has been rigorously analysed by the linguist Rudolf Botha (Botha, 2010). His compound inferential is summarized in Figure 1.

Botha poses that every conclusion in empirical work needs to be supported by a proper bridge theory (Botha, 2010, 348) to warrant the inferential step to the conclusion. Bridge theories should adhere to three basic principles; they are 1) testable 2) supported by empirical evidence and considerations 3) non-ad hoc. Botha (ibid.) points out that “a stipulation or an arbitrary assumption” will not do. As stated early, Botha applies this methodology specifically to the evolution of language (step EFG in his scheme), but the methodology can be applied in a more general context.

Apart from his own study, Botha (2010, 354) also suggests a necessity to “gauge the soundness” of the ‘shells-to-beads’ inference, and the ‘beads-to-symbol’ inference. The latter is done here, using a similar methodology as Botha. For the sake of argument, it will be assumed that step ABC (‘shells-to-beads’) is a valid inference. Figure 2 illustrated how Botha’s inferential step ‘D’ can be further subdivided.

It is important to note (as stated earlier) that the inference presented here is extended by other scholars such as Zilhão et al. (2010). Zilhão et al. argue that archaeologists must include other hominins when similar finds (i.e. artefacts identified as ‘personal ornaments’) are associated with the hominin in question. For example, Zilhão et al. (2010) argue that the marine shells presented in their paper adhere to the same criteria as finds from a ‘modern human’ context (ibid., p. 1023), and can therefore also be interpreted as markers for SB. This argument for capacity for SB in other hominins (most notably Neanderthals) is often repeated, either explicitly or implicitly in many other papers. Inferential step D2 can thus be generalised as:

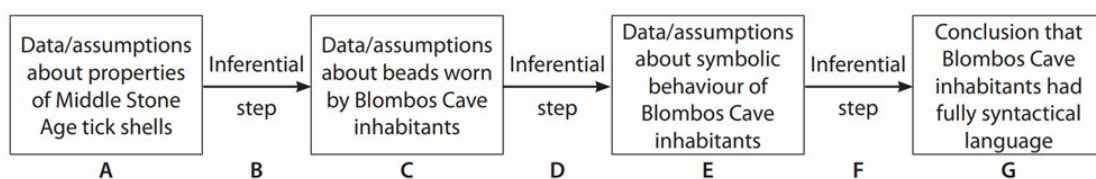


Figure 1: Botha’s (2010, 346, fig.2) of the inferential chain presented by d’Errico et al. (2005). Botha refers to the ABC inference as the ‘shells-to-beads’ inference; CDE as the ‘beads to symbols’ inference; and finally EFG as the ‘symbols-to-syntax’ inference.

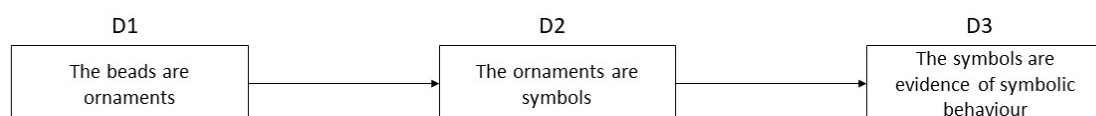


Figure 2: the subdivision of the ‘bead-to-symbol’ inference

‘Archaeological artefact X’ is a symbol

Which in turn leads to the conclusion:

‘Species/population Y’ which has produced ‘archaeological artefact X’ is therefore capable of Symbolic Behaviour

While there can be questions as to whether it is warranted to endow an entire species with SB at one point in time on the basis of a single find (see e.g. Stoczkowski 2002, 168-172 on generalisations in (palaeo)anthropology), the interpretation of ‘archaeological artefact X’ as a symbol might prove to be even more problematic. In many cases, there is simply assumed that ‘archaeological artefact x’ is a symbol (for example; Leder et al., 2021; Pitarch Martí et al., 2021 and other authors cited earlier in this paper neither give a definition of what they mean by a ‘symbol’ nor offer an explanation why the artefact they discuss should be specifically interpreted as such, other than their seemingly non-utilitarian nature and a suggestion of intentionality). However, this is a large inferential step that needs to be properly warranted by a bridge theory. To investigate whether this claim is warranted, the definition of a ‘symbol’ must be established, and the bridge theory presented by d’Errico et al. (2005) must be thoroughly examined.

## THE DEFINITION OF A ‘SYMBOL’

To assess the validity of the ‘beads-to-symbol’ inference, there must first be an understanding as to what archaeologists specifically mean when they use the term ‘symbol’. As stated earlier, many archaeologists do not provide a definition. However d’Errico et al. (2005, 4) do; “a key characteristic of all symbols is that their meaning is assigned by arbitrary, socially constructed conventions”; as such defining as symbol in the manner of how it refers to its object. d’Errico et al. (ibid.) primarily cite Wadley (2003) as to how to recognise symbolism in ancient artefacts. Wadley (2003, 248) operates a similar definition of a symbol (using Deacon’s (1997) definition); “Deacon points out that symbols are higher-order concepts than icons or indexes and that symbols point arbitrarily to their referents [Wadley here uses the word ‘referent’ while in semiotics this is mostly denoted as ‘the object’]”.

Deacon (1997) has written about symbolism (particularly in relationship to language) in archaeology extensively in his work the *Symbolic Species*. Deacon relies heavily on the semiotic theory formulated by the influential

semiotician Charles Sanders Peirce to develop his own variation (Deacon 1997, 70-73; de Villiers 2006; Eco 1986.; See figure 3), the latter being more appropriate for archaeology and human evolution. While there are some differences in the nuances Peirce, Deacon, Wadley and d’Errico et al. all define a symbol as a sign that refers to its subject in an arbitrary manner (Figure 3).

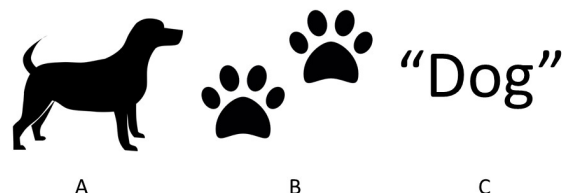


Figure 3: the semiotic signs shortly summarised (Deacon 1997, 70-73; Eco 1986, p, 136). A is an icon; it refers to its object by means of likeness. B is an index; it refers to its object by means of strong association. C is a symbol; it refers to its object by means of arbitrariness or convention, in this example; a word in the English language.

As such, the system that Peirce, Deacon, Wadley and d’Errico et al. use is a system that is based on reference. To warrant the ‘beads-to-symbol’ inference this manner of referencing must be properly understood (i.e.; How do semiotic signs come into existence?). This will be done in the next section.

## BRIDGE THEORIES; SEMIOSIS

In this paper it is assumed that Wadley and d’Errico use Deacon’s complete definition as it is described in Deacon 1997 (62-64; 70-73). Typically this type of semiotics generally involve three parties (Deacon, 1997, 63-64; de Villiers, 2006, 93, 96; Peirce, 1965, 135-136). The semiotic sign consists of an interplay between *the object*, *the representamen* (a term Peirce uses in to indicate the signifying element of the sign (Benedict, 1985). The terminology of this part of the sign is a bit problematic (ibid.), but it has little impact on the argument presented here.), and *the interpretant* (a means to interpret a sign, an interpretative response as it were (Deacon 1997, 63); not the same as an *interpreter*, which is the interpreting party). A semiotic sign comes into being when an interpreter recognises a representamen which can identify an object via an interpretant. Without the presence of one of these parties the semiotic sign cannot exist. This triadic relationship is problematic for archaeologists, as it implies that a semiotic sign cannot be contained in an artefact; it is an interpretational process. To warrant the

'beads-to-symbolism' claim it is up to the archaeologist to reconstruct this process. This entails reconstructing the *original* representamen, interpretant, and object. What d'Errico et al. (2005) seemingly claim to find is the representamen of the triadic relationship. The object to which the alleged symbolic beads refer is unknown, as well as the original interpretant. As d'Errico et al. (2005) miss two out of three components to create a semiotic sign, they attempt to reconstruct them; the shell beads were worn as personal ornaments and should be interpreted (according to Wadley (2003, 248)), as carriers of the identity of a social group, and are therefore symbolic. While this may seem as a valid reconstruction of the triadic semiotic relationship, d'Errico et al. (2005) have actually created a parallel semiotic sign based on a (possible) common representamen (Figure 4).

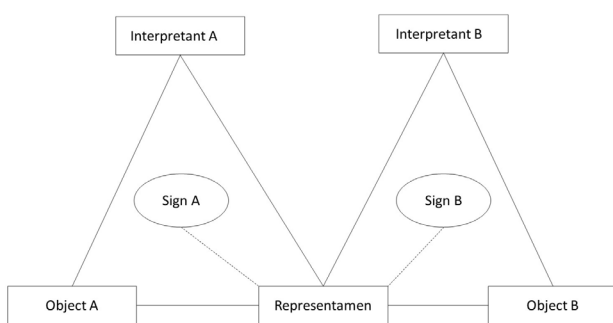


Figure 4: the parallel semiotic signs. Sign A in this case could be the interpretation by d'Errico et al. (2005), d'Errico et al. being the interpreters (and therefore using their own respective interpretant), the shell beads the representamen, and a symbolic signifier for group identity the object. Sign B could be a possible semiotic sign for the original inhabitants of the Blombos Cave; interpretant B being an unknown interpretant used by the social group, object B the possible social identity, and the representamen again the shell beads. However, there is no way to either verify or falsify that these signs are similar and/or overlapping or even if there was a semiotic sign connected to the beads in the original context to begin with.

This is in line with Deacon (1997, 62-64) who emphasises the importance of the interpretative context of semiotic signs. The reference is an interpretative response to a sign, not an intrinsic given of it.

While this is problematic for iconic and indexical signs as well, the problem is magnified by the arbitrary nature of symbolic signs; symbols have no relationship to reality except for an arbitrarily given meaning and/or a social convention, which is per definition not contained in the archaeological artefact. There is simply no way to tell if

something is/was a symbol without a complete reconstruction of the semiotic triadic relationship. As such, the chosen definition (Deacon's definition; 'symbols refer to their object in an arbitrary manner') by Wadley (2003) and d'Errico et al. (2005) results in an unresolvable logical situation, where it is impossible to either verify or falsify the validity of the 'beads-to-symbol' inference.

## CONCLUSION/DISCUSSION

In adopting the definition of 'symbols are signs that point to their object by arbitrary reference' d'Errico et al. (2005) have created an unsolvable logic dilemma. As such the term SB seems to be inoperable in the context of human evolution. While this problem is apparent in particularly a human evolution context, the interpretation of semiotic signs in archaeology is universal; only by reconstructing the entirety of a semiotic triadic relationship (if this definition is applied) a semiotic sign can be properly inferred. There should not be denied that making some degree of axiomatic assumptions is inherent to archaeology, but in the case of SB, the conclusions are disproportionate to the data; the inference chain is a logical impossibility, while at the same time it is often highly impactful on the narrative of human evolution.

This paper should also be viewed in the context of the human evolution narrative. The discussion has shifted from Modern Behaviour to Symbolic Behaviour, the latter presumably being one of the defining trait of what ontologically should be viewed as 'humanness'. If the concept of SB will prove as inoperable as its predecessor MB in a human evolutionary context, perhaps it is time for archaeologists to revise the idea of human essential exceptionalism.

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