

Language, symbols and shared abstraction

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Core question

What changes when communities can represent things that are absent, classify them, refer to them jointly and preserve shared meanings?

Historical and evolutionary context

Spoken language leaves no direct fossil. Its origins therefore cannot be assigned a single archaeological date. The evidence comes indirectly from anatomy, genetics, comparative cognition and material traces of symbolic behaviour. Archaeological finds such as engraved ochre, beads, pigments and patterned objects show that some populations of *Homo sapiens* were participating in socially transmitted symbolic traditions by at least the later Middle Stone Age in Africa.

At Blombos Cave in South Africa, engraved ochres from deposits around 77,000 years old provided early evidence of abstract representation. Later work has expanded the record to older engraved objects and repeated traditions. Such artefacts do not reveal grammar or vocabulary, and they should not be treated as direct proof of modern language. They do, however, show that marks and objects could carry socially structured meanings beyond immediate utility.

What could communities know before shared abstraction?

A group can coordinate through gesture, attention, emotional signalling and learned routines without fully symbolic language. Social learning can preserve practical know-how through demonstration. But knowledge remains difficult to detach from the immediate situation.

A symbolic system allows a community to refer to absent animals, future events, remembered routes, social categories or hypothetical situations. This changes the temporal and conceptual reach of coordination.

What changed?

Language and symbolic practice enable **compression and recombination**. A word or conventional sign can stand for a class of objects rather than one instance. Sequences can express relations: before/after, cause/effect, here/there, mine/yours, possible/impossible. Knowledge becomes increasingly explicit, discussable and transferable across contexts.

The evolution of symbolic culture was probably mosaic rather than sudden. Nor should symbolic or proto-symbolic marking be treated as uniquely *Homo sapiens*: geometric engraving has also been reported on a shell from Trinil attributed to *Homo erectus*, while proposed symbolic behaviour among Neanderthals remains debated. Such finds widen the comparative problem without establishing language or grammar. The archaeological record shows repeated appearances, disappearances and regional variability. Recent experimental work on early engraved patterns suggests that some traditions became more visually salient and easier to reproduce over time, consistent with cultural evolution of graphic conventions, though not necessarily with fully denotational writing-like signs.

Why could this capability emerge?

Shared symbols require communities that repeatedly coordinate meanings. They depend on attention to others, memory, social learning and enough interaction for conventions to stabilize. Once present, symbols feed back on cognition: they allow distinctions to be named, remembered and taught.

What later forms of knowledge did it enable?

Language makes possible explicit instruction, narrative memory, negotiation, categorization and cumulative explanation. Symbolic externalization later supports counting, mapping, ritual calendars, writing, mathematics and formal science.

New limits and risks

Symbolic systems can mislead as well as clarify. Names can reify categories that are fuzzy; narratives can preserve false causal models; prestige can give authority to claims independent of evidence. Language expands the space of possible knowledge and the space of possible error.

What changed in the architecture of human knowledge?

Knowledge became increasingly **representational**. Humans could manipulate stand-ins for reality, discuss what was not present and coordinate around shared abstractions. This was a precondition for later external symbolic storage.

Loss, exclusion and uncertainty

The central evidence problem is that speech itself does not fossilize. Archaeology preserves selected marks, objects and spatial associations, but not the conversations, conventions or teaching acts that gave them meaning. Any reconstruction of early symbolic systems is therefore necessarily indirect.

Archaeological symbols are difficult to interpret because meaning rarely survives with the object. Researchers should avoid calling every patterned mark “language” or every ornament “modern cognition.” The safest conclusion is that symbolic traditions were present and socially transmitted; the structure of spoken language remains largely inaccessible archaeologically.

Dependency map

- DIRECT ← PIO-001 Cooperation and cumulative culture
- INDIRECT → PIO-014 Cuneiform accounting, writing and external memory
- INDIRECT → mathematical notation, maps and scientific representation

References

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