

Abstract Images: The Role of Language and Perception in Thought about Abstract Particulars

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What is the relationship between thoughts of concrete everyday particulars such as chairs, cups, and pink flamingos, and thoughts of abstract particulars such as negation, virtue and Tuesday? In the first case, it can be assumed that my perceptual experience of a pink flamingo provides sufficient grounds for me to entertain a thought about pink flamingos. More precisely, it seems reasonable to suggest that through perceptual experience I suitably acquire some conceptual content—*pink flamingo*—which I am then able to deploy in any number of thoughts about pink flamingos. In contrast, Tuesdays are entirely unperceivable. As a consequence, there is no straightforward sense in which through perceptual experience (or anything else, for that matter) I can acquire the conceptual content *Tuesday* to entertain thoughts about Tuesdays. Nevertheless, it is evidently possible for mature human beings to entertain the thought “Last Tuesday I saw a bright pink flamingo”. How should we explain the fact that we possess concepts of particulars that we cannot perceive?

[...]

Recent work in Cognitive Science has brought a considerable backlash to the once-dominant ‘Cognitivist’ approach to cognition and thought that is exemplified by both CS and CL. The principle view in which this backlash is manifested—the *Extended Mind* (EM) view—rejects a fundamental premise of Cognitivism, namely that all thinking occurs within the bounds of the human organism. Instead, EM places the explanatory burden on the *interactions* between brain, body, and external world: when faced with a real-world problem that demands a cognitive solution, biological organisms enhance their own (relatively simple) cognitive capacities by exploiting the structural and functional properties of (complex) environmental ‘tools’ or ‘artifacts’. This can be said of ‘low-level’ perception/action tasks like catching a fly-ball as of ‘high-level’ tasks like the design and execution of a long-term plan for bringing back to good health my favorite pet flamingo. Moreover, this might also be said of tasks that require some form of abstract reasoning, such as planning that my pet flamingo be healthy *by next Tuesday*.

How exactly do proponents of the EM view explain our ability to successfully engage this last kind of task? Andy Clark (1997; 1998; 2006) has suggested that natural language constitutes the “ultimate artifact”, and that it is the exploitation of this artifact that underlies thought about abstract particulars. In particular, he argues that the representational properties of natural language addressed in Section 1 can be exploited straightforwardly to extend the cognitive capacities intrinsic to the brain, thus enabling us to tackle problems whose solution might require the kind of abstract representation which non-linguistic creatures are incapable of. On this view, our capacity for thought about unperceivable particulars is not constructed over an internalized system of abstract representations (as in both the CS and CL views), but rather over a complex conglomerate of simple cognitive capacities that enable us to manipulate and reproduce written marks on a page or spoken sounds in the air. Importantly, on this view it is the very *act* of engaging in with linguistic tokens (some of which represent abstract particulars) that constitutes abstract thought.

It should be immediately clear how EM differs from both CS and CL when it comes to explaining how our thoughts involve abstract conceptual contents. On both Cognitivist views, what is operative in any single thought-episode is an explicit mental representation of the entities involved in that thought. In CS, a thought about Tuesday necessarily involves the Mentalese symbol for *Tuesday*, and in CL, a thought about Tuesday involves some conscious experience of the word ‘Tuesday’ *in addition* to either (a) the Mentalese symbol for *Tuesday* (Jackendoff’s version) or (b) a semantic representation of the linguistic content ‘Tuesday’ (Carruthers’ version). In contrast, EM suggests that no mental representation of *Tuesday* or ‘Tuesday’ need be involved at all.¹ Rather, it is sufficient that we actively (and suitably) *engage with* an instance of the linguistic token ‘Tuesday’—be it a written on a page, spoken aloud, or articulated entirely in an episode of ‘inner speech’. Whenever we are thus engaged with a tokenization of the word ‘Tuesday’, we are effectively *thinking about* Tuesdays.

Does the Extended Mind view provide an adequate answer to our original question, viz. how our thoughts can involve contents that represent unperceivable particulars? In a sense, yes. Recall that EM rejects the fundamental premise that all thinking occurs within the bounds of the biological organism. Rather, in virtue of actively involving physical manifestations of language tokens on paper and in the air, a substantial component of the abstract thought-process occurs in the external environment. Therefore, if one is willing to reject the intuitive connection between brain and mind, it appears that there is nothing to say against declaring that yes indeed, if we can use and produce language tokens that represent unperceivable particulars, our thoughts can also involve contents about those particulars.

Should we be happy with this answer? I believe there is still reason to worry. Although supporters of the EM view (e.g. Clark & Chalmers 1998) decry the “arbitrariness” of biological and physical boundaries when it comes to explaining cognitive phenomena, there is quite simply something deeply and non-trivially intuitive about the brain/mind connection. Moreover, rejecting this intuitive connection has an extremely unappealing consequence: the EM view simply leaves it unclear where to draw the line between cognitive and non-cognitive processes. Supporters of the EM view suggest that there is no *a priori* restriction on the number and kinds of artifacts that might be involved in cognitive processes, nor on the spatial and temporal distribution of these artifacts (Clark & Chalmers 1998). But if this is in fact true, then we are faced with the following unanswered question: where does the mind stop? Theoretical as well as pragmatic concerns² demand an answer (even if it is purely intuitive), but it is quite clear that the Extended Mind view cannot (or refuses to) provide one.

¹ This is of course not to suggest that all proponents of EM need adopt the radical anti-representationalism proposed by, among others, Van Gelder (1995), in which *nothing* is represented in the mind. Rather, EM only claims that *not everything* that is thought about also needs to be thus represented. In particular, unperceivable particulars do not need to be represented.

² A clear example arises when reflecting on the nature and purpose of Cognitive Science as a unified empirical discipline. Although a number of sub-disciplines (e.g. Human-Computer Interaction, Biological Robotics) are increasingly assuming the “embodied and embedded” perspective of the EM view, other sub-disciplines (notably, Cognitive Neuroscience) do not, and arguably *should* not, assume this perspective; there simply is no plausible sense in which Cognitive Neuroscience has much (if anything) directly to do with objects in the external world. This suggests that not all sub-disciplines of Cognitive Science need share the focus on brain/body/environment interactions forwarded by the Extended Mind view, although

What does this say about the prospect of the Extended Mind view when it comes to explaining how we acquire conceptual contents of unperceivable particulars? The grain of truth in the Extended Mind view might not be that abstract thought itself *occurs within* the space occupied by complex brain/body/environment interactions, but maybe only that greater emphasis should be placed on the complexity and sophistication of the biological mechanisms that *underlie* these interactions. But which mechanisms might these be? The examples presented in earlier sections suggest that one good place to start looking is in our use of natural language. However, in contrast to CS, CL, and EM, it will now be suggested that the key to understanding the cognition-enhancing role of language lies in recognizing the complexity and sophistication of the *perceptual* mechanisms that govern our interactions with tokens of natural language words and sentences.

they *must* all at least share an interest in the neurocomputational basis of these interactions. Therefore, it appears that the intuitive association of brain and mind is not *just* intuitive, but is in fact grounded in our very scientific practice, a practice we might (or might not) want to take seriously.