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The case for protoconcepts: Why concepts, language, and protolanguage all need protoconcepts

Abstract. Fodor is infamous for his radical conceptual nativism, McDowell likewise well-known for suggesting that concepts extend “all the way out” into the world and arguing against what he calls (*per* Sellars) The Myth of the Given: the idea that non-conceptual percepts justify conceptual frameworks. One need not go so far as either researcher, however, in allowing merit to their arguments. It seems we are predisposed, from the beginning of our lives, to look at the world in certain ways and not others. The world need not be “fully conceptual” to be never entirely free, for the conceptually minded agent, of conceptual taint. It seems structured remarkably like our concepts are structured because our concepts present it that way, and our concepts present it that way because of predispositions that are substantively innate. The *Protoconcept Hypothesis* holds that such protoconcepts are onto- and phylogenetically prior to concepts, themselves onto- and phylogenetically prior to (proto-)language. If that is right, then an account of language genesis and evolution requires a corresponding account for concepts and an explication of protolanguage assumes an explication of protoconcepts.

Keywords: concepts, protoconcepts, innateness, Myth of the Given, Kantian spontaneity, systematicity, productivity, evolution.

1. Introduction

They are the building blocks of structured thought, the set of abilities by which we respond to the world we encounter in a coherent and consistent matter. Concepts structure our experience of the world, delivering the world to us as categories and categorical boundaries.^{1 2} At the same time, they generalize away from the particulars of any given moment, context, or (*contra* Gallese and Lakoff 2005, Berkeley 1999) application, even as they always apply *back* to specific contexts. They function as they do because they are both stable enough to be applied systematically across unboundedly many contexts and productively combined and recombined in unboundedly many ways, as well as flexible enough to adjust to each new context – seemingly, by definition, at least subtly different from any context that has come before. They are *intentional* in the sense that they are always directed at something (a concept is always a concept of); and they are always directed at something *for someone: a conceptual agent* who is ultimately their master, deriving new concepts as needed and discarding old ones as they become irrelevant.

Although his position is not always clear and appears to have shifted over time, Jerry Fodor is known, and not infrequently ridiculed, for his *radical nativism*: the idea that all or most of our primitive (unstructured) concepts are innate.³ John McDowell is likewise known for his *conceptualism*: the idea that experience just is experience to the extent to which it is conceptually structured (a formulation I owe to Michael Beaton⁴) and that the world arrives for us, as conceptual agents, (fully) conceptually structured: “mind is able to

¹ For purposes of this paper, I am taking categories to be one of the key defining aspects of concepts: i.e., concepts *categorize* the world for us; but one can also talk about the nature and structure of concepts at least somewhat independently of how they categorize: e.g., their role in inferential reasoning. That is, “concept” is the more general term, “category” the more narrowly focused one.

² Compare the definition of concepts here with the one that Laurence and Margolis (2002: 28), following Fodor, offer: “...sub-sentential mental representations, that is, representations with sub-propositional contents”. I wish largely to avoid using the term “representation” here (never mind the even more problematic term “mental representation”) given the way the term is used ubiquitously and almost casually, without being defined. I also wish to avoid any stipulative (non-empirical) link to language or language-like structure for reasons that should become clear.

³ As Eric Laurence and Stephen Margolis note (1999: 62), such primitive concepts include all our lexical concepts. “Fodor’s innateness thesis amounts to the claim that most of our concepts are innate, a result that virtually everyone finds patently absurd” (Kaye 1993: 198) – a point echoed by Laurence and Margolis (2002: 26).

⁴ Personal communication.

represent world because world, like mind, turns out to be conceptual: reality is itself conceptual” (Koons 2004: 130). McDowell rejects, in the strongest terms, the notion of a non-conceptual “Given” at the level of our percepts that gives rise to our conceptual structures. In a now famous turn of phrase, he writes, “the idea of the Given offers exculpations when we wanted justifications” (McDowell 1996: 8).

The two issues interrelate. Logically it might seem – as it does to McDowell – that only concepts can beget concepts, and that a truly non-conceptual realm cannot serve as foundation to a conceptual one. Likewise it might seem – as it does to Fodor – that the ways we structure our understanding of the world are, from the beginning of our lives, severely constrained and that the new-born mind does not constitute a *tabula rasa*. Both intuitions are, I think, at heart correct. Certain concept-*like* predispositions are with us from the beginning, and they carry us through to the end. Throughout our lives, conceptual and non-conceptual do not pull cleanly apart, either when our thoughts are directed “inward” toward our other thoughts or “outward” toward the world.

In keeping with such philosophers as Albert Newen, Andreas Bartels (Newen and Bartels 2007), and Colin Allen (1999), I hold that concepts – in the sense of systematically, productively, compositionally, and intentionally structured thought – are shared with at least a few and possibly more than a few other species. As such, they are prior to language both onto- and phylogenetically. The “silence” of other species in the face of our questioning should not be mistaken for a lack of conceptual sophistication; as Merlin Donald writes (1998: 185), “humans are undoubtedly unique in their spontaneous invention of language and symbols; but, as I have argued elsewhere ... our special advantage is more on the production side than the conceptual side of the ledger. [Non-human] animals know much more than they can express.”

On this view, rather than making conceptually structured thought possible, language transforms and extends conceptual abilities: allowing concepts to be more abstract, more richly compositional than ever before, at the same time as making them far easier to share. If this is right, then any account of protolanguage requires an account of concepts to ground it, and any account of concepts requires – to take the right lesson, I believe, from Fodor and McDowell – an account of protoconcepts to ground *that*.

Protoconcepts are not concepts because they lack several of the usual desiderata of concepts:⁵ in particular, they are too few in number to be,

⁵ For a list of such desiderata, see e.g. (Parthemore 2015 *in press*, Chrisley & Parthemore 2007).

of themselves, productive (*cf.* Evans' *Generality Constraint*: Evans 1982: 100–104); they are too general – too applicable to every conceivable context – to be open to revision, as I think true concepts require (though see Woodfield 1994); and, being innate, they are not under the agent's *endogenous control*: Jesse Prinz's (2004: 197) preferred phrase for Kantian *spontaneity*, by which the conceptual agent is ultimately the master of the concepts and not the concepts the master of the agent.⁶ Given the appropriate environment and the appropriate interactions with that environment, a remarkably small set of protoconcepts can and does give rise to the most richly structured of conceptual frameworks.

In Section Two, I attempt to sort out Fodor's nativism and ultimately reject it in favour of a much weaker form of nativism. In Section Three, I address McDowell's conceptualism and opt for a non-conceptualist or "protoconceptualist" alternative. Section Four explores the relationship between (proto-)concepts and (proto-)language in the context of Fodor's *Language of Thought Hypothesis*. In Section Five, I summarize the argument for why we need protoconcepts: why, *contra* Vittorio Gallese and George Lakoff (2005), sensorimotor engagement is not enough; what our protoconcepts probably consist of; and how they give rise, through sensorimotor engagement, to fully-fledged concepts and conceptual frameworks. I introduce the *Protoconcept Hypothesis* whereby a small set of innate protoconcepts give rise to the most sophisticated of conceptual frameworks. In Section Six I offer my summary and raise the unaskable question: what would our conceptual frameworks and our world be like if our protoconcepts were different?

2. Responding to Fodor: A more modest nativism

In his reassessment – or reinterpretation – of his original Language of Thought Hypothesis (Fodor 1975), Fodor (2008: 131) takes it as "not seriously controversial" that "minds like ours start out with an innate inventory of concepts, of which there are more than none but not more than finitely many." On the face of it, this is a considerable retreat from his earlier *radical nativism* with its distinctly Chomsky-like feel to it.

⁶ "If we want to be able to take it that the operations of conceptual capacities in experience impinge rationally on our thinking, as they must if they are able to be recognizable as operations of conceptual capacities at all, we must acknowledge that those rational relations fall within the scope of spontaneity" (McDowell 1996: 52).

One can certainly understand reasons for such a retreat. Despite having had its share of enthusiasts (see e.g. Levin and Pinker 1991, who endorse its logic if not its conclusions), radical nativism runs quickly into conceptual problems. As Jesse Prinz writes (2004: 230):

[...] One might wonder how evolution could have endowed us with some particular mental symbol that is predestined to track spatulas. If evolution set aside some symbol for this purpose, then it would have had to anticipate the invention of spatulas [...]. [However] if concepts are individuated by the properties that nomologically control them [as they are on Fodor's account], then to say that I have an innate spatula concept is not to say that I have some particular mental symbol in my head at birth [...]. It is only to say that I am disposed to enlist some symbol or other to serve as a spatula indicator. In other words, we are not born with spatula symbols; we are born with spatula detecting abilities [...].

The idea that *some* level of conceptual abilities is innate is much easier to defend. As Stevan Harnad writes (1990: 2), “clearly, no organism is born a blank slate. Some categories are innate.” What goes for “lower” animals goes, one presumes, more so for language-using humans: “infants do not know the grammar of the particular language community they are born into, but they do have some understanding of the conceptual world that the surrounding language users are expressing” (Levin and Pinker 1991: 4) – an idea that finds much resonance in the writings of Colin Trevarthen (see e.g. 2012), for whom infants are born with a rich intellectual endowment, indeed.

Fodor expresses his more modest nativism like this, emphasizing the intimate link between concepts and experience (2008: 145):

The central issue isn't which concepts are learned, since, if the (emended) LOT 1 argument is right, none of them are. Nor, however, is it which concepts are innate, if an innate concept is one the acquisition of which is independent of experience. Quite likely, there are none of those, either. Rather, the problem is to explain how a creature's innate endowment... contributes to the acquisition of its conceptual repertoire; that is, how innate endowments contribute to the processes that start with experience and end in concept possession.

The problem with putting experience first is that it raises the following question: to what extent can there *be* experience without something to structure it? I agree with the conceptualists this far: entirely non-conceptual “experience” is not experience in the usual sense at all. That is why, in (Parthemore and Morse 2010: 297–298), I suggested a circular causal relationship between concepts and experience, rather than a linear one:

Most if not all concepts require experience to give rise to them. Most if not all experience requires concepts to give structure to it. It’s like the chicken-and-the egg problem: which comes first? Logically something must start things off, but it need not be either concepts or experience as we understand them. Caught within our conceptual perspective, we cannot step outside of it: we cannot simply put our concepts or our conceptually structured experience aside. Concept acquisition and application go hand in hand. Acquiring concepts is a process of applying concepts, which may themselves change in the process of acquiring the new concepts.... The model of causality is not linear but circular.⁷

Fodor’s “emended” account is problematic in other ways – at least if you believe, as I do (Parthemore 2015 *in press*, 2014, 2013, 2011a; Parthemore and Whitby 2014; Parthemore and Morse 2010), that concepts as things and concepts as abilities are two sides of one coin. For Fodor with his *informational atomism* (Fodor 1998), concepts are (physically instantiated) symbols – something that does *not* seem to have gotten revised in *LOT2*, though the “emended” account is still, I believe, a step in the right direction.

As Harnad says, we do not start out empty handed. *Pace* Gallese and Lakoff, with their sensorimotor account of concepts (2005) – according to which even our most abstract of concepts are *nothing more* than specific sensorimotor engagements, with portions of the motor response suppressed⁸

⁷ Note the seeming contrast with the following: “the principal motivation for the non-conceptual theorist is simply that the color concepts that we possess are a function of the perceptual discriminations that we are capable of making. It is not the case that the perceptual discriminations we are capable of making are a function of the color concepts that we possess” (Bermudez 2007: 61) – this despite my assumption, in this paper, of a generally non-conceptualist perspective.

⁸ As I note in (2014), “the account is oddly reminiscent of George Berkeley’s discussion... of triangles and his argument that no one has an abstract concept of triangle that is anything more or other than a specific triangle instance (for Berkeley, a mental picture of a triangle). Like Berkeley, Gallese and Lakoff reject the notion of abstract classes in favor of ‘concrete’ instances.”

– something more than a capacity for sensorimotor engagement is needed, not just to keep the process going, but to get it started in the first place. That said, that “something more” must work very intimately with the sensorimotor system – to borrow a phrase, “more closely than a hand fits into a glove”.

At the same time, and in contrast to Fodor’s early radical nativism, one almost certainly wants to start with the *absolute minimum necessary* built in, so as to afford the greatest possible flexibility. The reason why *machine consciousness* systems are not – despite their creators’ occasional claims – “minimally conscious” (Parthemore and Whitby 2014: 153–155) and why AI programs are not, as of yet, artificially intelligent,⁹ is not just that they violate the usual albeit unstated presupposition that consciousness presupposes cognition and cognition presupposes life (*cf.* Zlatev’s *semiotic hierarchy*: Zlatev 2009) – if not necessarily life as traditionally conceived, with a particular biological form and evolutionary history.

The problem is that they *build too much in*. As the frame problem should have convinced us long ago (McCarthy and Hayes 1969), this cannot be the way to go.

3. Responding to McDowell: Protoconceptualism over conceptualism

McDowell’s conceptualism finds its clearest articulation in *Mind and World* (1996), based on his 1991 John Locke Lectures at Oxford University. Like Fodor and in contrast to someone like Prinz, McDowell is coming more from the rationalist than the empiricist tradition in philosophy, and his conceptualism – by which the content of perceptual experience *just is* conceptual – has, in consequence, a distinctly rationalist-inspired feel to it. Note that, for all that he is otherwise Kantian, McDowell is not making a Kantian-type distinction between the experienced *life world* and mind-independent reality: for McDowell, these are one and the same. In doing so, he sidesteps Kant’s so-called *transcendental idealism* – really a form of antirealism – without resolving the issues that it raises. McDowell has

⁹ Fodor (2001: 37) describes this with his characteristic humor: “we still don’t have the fabled machine that can make breakfast without burning down the house; or the one that can translate everyday English into everyday Italian; or the one that can summarize texts; or even the one that can learn anything much except statistical generalizations.”

stood accused of idealism (e.g. Morris 2009, Koons 2004¹⁰), and not without reason, for his *space of reasons* is meant to be complete unto itself – self-supporting – looking like the very “frictionless spinning in a void” (1996: 11, with many subsequent references in the text) that he seeks to avoid.

Concerns aside that McDowell may be over-intellectualizing matters, his conceptualism is a problem for anyone who believes – as I do – that all experience, for the conceptual agent, is a mix of the conceptual and the non-conceptual, or who otherwise sees a continuity between conceptual and non-conceptual.¹¹ The usual argument for the non-conceptual content of experience – albeit one that Bermudez (2007: 62) believes to be in many ways a mistake – is that experience is far more fine-grained than finite conceptual abilities would seem to allow: e.g., normally sighted persons can reliably distinguish hundreds of thousands if not millions of colours, and yet it strikes many people as odd, to say the least, to suggest that people possess indivisible concepts for each of them.

Bermudez would prefer to give equal space to subpersonal non-conceptual mental content, which I think is a mistake; I don’t believe we should be talking about subpersonal mental content at all – which puts me at least somewhat in sympathy with Daniel Hutto (see e.g. Hutto and Myin 2013), who would eschew mental content altogether.¹² The non-conceptual content I want to talk about – and I *do* want to call it content – is very much bound up with conceptual content, rather like two sides of a coin. The basic argument is that, when we experience the world, we encounter it – as McDowell correctly maintains – conceptually structured, albeit conceptually structured perhaps only because our concepts shape it to fit that mould. To make sense of that conceptual structure though, one needs – I believe – to assume additional non-conceptual content (or, if you will, less than fully conceptual content¹³) to glue it together. We catch sight of such content best

¹⁰ “[For McDowell] world is assimilated to mind: reality is in the space of reasons” (Koons 2004: 130).

¹¹ “Content is nonconceptual just if it can be attributed to a subject without *ipso facto* attributing to that subject mastery of the concepts required to specify it” (Bermudez 2007: 55–56). The notion of non-conceptual content is usually traced back to (Evans 1982), though most contemporary discussion focuses around non-conceptual content of conscious experience, which is not Evans’ focus, which is rather on the non-conceptual content *underlying* such experience.

¹² The personal/subpersonal distinction was first expressed that way by Dennett (1969). Roughly speaking, “personal” is that which is “for the entire agent”, “subpersonal” everything below that: i.e., the brain and nervous system processes that make the agent possible.

¹³ Alva Noë is certainly open to such a continuum between the conceptual and the non-conceptual, with a pragmatic line dividing the two (2004: 31): “the understanding of con-

when we wake from a particularly deep sleep or from anaesthesia and, for a few moments, we “see” without our vision resolving itself into shapes; we “hear” without our hearing resolving into sounds. Such experience is still conceptually structured – we are, after all, *aware* that we are seeing and hearing – but much less so than is normally the case.

The problem is not – as McDowell seems driven to with his neo-idealism – that mind and world are one. It is rather – as I think Kant correctly understood – that mind and world do not cleanly pull apart. The solution, as I see it, is not to embrace McDowell’s strong conceptualism but to take on board a form of it that even a non-conceptualist could love: call it *protoconceptualism*. Protoconceptualism accepts McDowell’s assault on the Myth of the Given, acknowledges the problem with the (fully) non-conceptual justifying or otherwise giving rise to the conceptual. Provided that concepts do not fully or cleanly pull apart from non-conceptual referents “in the world”, then some amount of conceptual residue will remain “in the world”, and the conceptually untouched Given will, indeed, be – as Sellars and McDowell correctly diagnose – a myth (Parthemore 2011b: 89–91). It is a myth not only over the general course of our lives but from the very beginning.

4. Responding to Fodor: Why there is no language of thought

There is a picture of the brain, available on the Internet, where the brain is divided, not into the usual areas of e.g. frontal lobe, parietal lobe, temporal lobe, etc., but analogously shaped areas labelled “sex”, “I’m gonna google that”, “must. pick. split. ends”, “is this food still good”, “I’m eating it anyway”, etc. It’s easy to slip into the idea that thought *just is* linguistically structured – either in everyday language or, as Fodor rather more esoterically would have it (2008, 1975) – in a clearly Chomsky-inspired frame of mind – in a special mental “language” he calls *mentalese*, distinguishable from everyday language because it is completely unambiguous. Indeed, it is not difficult to find philosophers or psychologists – I have people like Sellars (1956), Daniel Davidson (1987), and Zoltan Torey (2009; see esp. 46, 123) in mind – who think that human-style language is necessary to having a mind

cepts is supposed to be a paradigm of personal-level accomplishment. But just as there is no sharp line between the personal and the sub-personal, so there may be no sharp line between the conceptual and the nonconceptual.”

at all and that non-human animals are, in a very Descartes-like way, “mere” automata.¹⁴

Such a picture poses a number of problems, not least that, in prioritizing language over thought, it puts communication before thinking and the capacity to communicate prior to the capacity to think – leaving evolution to do all the work, onto- and phylogenetically. It might appear that agents are sharing ideas before they even have them.

Then there are some number of people who will stubbornly insist, on introspection, that they can think the most abstract of thoughts without consciously entertaining words at all: i.e., they “hear” no running inner narrative (nor, will they say, are they thinking in a series of conscious images). That many people *do* claim to “hear” an inner narrative consistently is not proof, of itself, that language of whatever kind is constitutive of our thoughts. Indeed, it is hard to imagine what such proof would look like – at least if taken as an empirical matter rather than logical necessity.

There are other problems. Though rarely making such commitment explicit, all but the most boldly eliminativist or hardline reductionist approaches to consciousness seem to take for granted that consciousness – as opposed to simple awareness (which even single-celled organisms possess) – is conceptually structured.¹⁵ Concepts and consciousness seem deeply intertwined: where one finds consciousness, one finds concepts and conceptual frameworks; where one finds concepts and conceptual frameworks, one finds consciousness; and, as Thomas Nagel has reminded us (1974), we are willing to attribute consciousness, albeit in varying degrees, to a range of other species. We may differ on whether frogs have it and be inclined to say that insects do not, but we are pretty certain that bats and, indeed, most other mammals do.

¹⁴ There are, of course, intermediate positions between such a position and the one I am setting out: so e.g. Wacewicz (2011) sees language as more fundamentally transformative to cognition than I am allowing while accepting that non-human species do have minds and are not automata. Although Wacewicz defines concepts *just as* lexical concepts and their derivatives, his point is meant to be more than stipulative / purely terminological, and he would likely say that one or more of the desiderata I listed at the start of this article are exclusively human: notably systematicity, productivity, and compositionality, all of which are implied by the aforementioned Generality Constraint, which he thinks arrives only with language. Where we agree is that there is no mentalese, nor is thought otherwise linguistically structured, even for human beings.

¹⁵ Wacewicz (2011) implicitly acknowledges this relation between concepts and consciousness in conceding that a position like his could be and has been used to argue against consciousness in non-human agents, though he himself wishes to remain agnostic.

Indeed, concepts and consciousness are alternatively held up as the hallmark of complex and flexible cognition: what separates us and anyone like us from “true” automata. As the field of cognitive zoology (also known as *comparative cognition*) is increasingly revealing – and winning converts – several, and possibly more than several, non-human species – in particular among the great apes, delphinids, corvids, and parrots – have complex cognitive abilities that previously were thought to be exclusively human: future-oriented cognition, also known as *mental time travel* (Osvath and Martin-Ordas 2014) – including the ability to plan for future deception (Osvath and Karvonen 2012) and defer exchange (Osvath and Persson 2013); emotional contagion, including synchronized play (Osvath and Sima 2013); sensitivity to the perspective of others, including non-conspecifics (Bugnyar 2011); the construction of tools from materials at hand (Osvath and Karvonen 2012, Osvath 2009); mirror self-recognition (originally described in Gallup 1977); and so on. What seems to set these species apart physiologically is a much higher-than-average brain-to-body-mass ratio, regardless of absolute body size. What sets them apart behaviourally is an ability to adapt to a remarkable range of terrestrial environments, as can be particularly seen with the corvids, whose range of habitats is nearly as broad as humans’.

Fodor comes tantalizingly close (1987) to suggesting that such species are – in the sense that I am talking about concepts (though not his own, more overtly lexically bound one) – conceptual agents. Of course, what he *could* say is that these species – all of which lack human-style language – nevertheless possess a form of mentalese; but that, I think, would be a mistake. First, it raises the question of why at least some of them do not, in fact, possess human-style language after some fashion (perhaps not vocal, given limitations on their articulatory abilities, but e.g. gestural). Second, the matter is, as noted before, seemingly impervious to empirical determination, resolvable only by attempted logical fiat. Finally – given that language is paradigmatically symbolic – such a move assumes that conceptual cognition is largely if not entirely symbolic: something that many contemporary researchers, notably connectionists (see e.g. van Gelder 1990), dynamic systems theorists (see e.g. van Gelder and Port 1996), and enactivists (see e.g. Hutto and Myin 2013), are pointedly hostile toward. Peter Gärdenfors (2004), with his *Conceptual Spaces Theory* – on which I base my own *Unified Conceptual Space Theory* (2015 *in press*, 2013) – deliberately casts concepts / conceptual cognition as *neither* intrinsically association based nor symbolic, sitting somewhere in between.

What I think that Fodor *should* say, instead – along with other researchers inclined toward or insistent upon an inseparability between concepts and

language – is that, rather than making our conceptual abilities possible in the first place, language transforms and extends them, facilitating their increasing abstraction at the same time as their social dissemination. Language is a tool that becomes so essential to us it gets incorporated into our core self image, so that it is hard for many of us to imagine thoughts *without* language. On the one hand, as linguistic agents, we seem compelled to use language to discuss our concepts and conceptual frameworks. On the other, we should not therefore leap to the conclusion that language is foundational to the structure of our thoughts. Instead, I suggest that it throws a veil over our conceptual nature¹⁶ – one that we can only partially begin to lift by looking at pre-linguistic infants and non-linguistic yet concept-using species.

5. The case for protoconcepts

With these preliminaries taken care of, I am now ready to set forth the case for protoconcepts, as they relate to both the (onto- and phylogenetic) evolution of mind and of language / language abilities. If any account of language requires an account of protolanguage to ground it – and there are many who would say that it does, even as the means by which to do so differ (see e.g. Tallerman 2007, 2005; Arbib 2005); and if, as I have argued in the previous section, any account of (proto-)language requires an account of concepts to ground it; then any account of conceptual genesis and evolution – in the individual (ontogenetic) or species (phylogenetic) – requires an account of protoconcepts to ground *it*. This, I think, is taking the right lesson from Fodor and McDowell! Protoconcepts have the sort of *nomie* (law-like) relations that Fodor wants *all* concepts to have: i.e., what makes a protoconcept a protoconcept – *all* that makes it the protoconcept that it is – is that it reliably tracks all and only what it is meant to in the environment; nothing more can be said about it (unlike our ordinary concepts of dogs, laughter, throwing a ball, etc., of which much more can be said than the bald relation between concept and referent). Meanwhile, conscious experience comes not conceptually structured – not in the beginning, and not entirely, ever – but protoconceptually (and non-conceptually) structured.

¹⁶ For example, language can make our concepts appear more stable than they actually are: just because the lexical label is stable does not mean that the underlying conceptual framework is, as Thomas Kuhn pointed out with respect to the pre- and post-Copernican notions of "planet" (see e.g. Kuhn 1990: 5).

Protoconcepts reflect an innate predisposition to respond to the world in certain ways and not in others – regardless of the ultimate (mind-independent) nature of that world. Their “proof” lies neither in empirical investigation nor in logical fiat but – if I am right – in their explanatory power. If there is an *explanatory gap* between the fully non-conceptual and the conceptual, either onto- or phylogenetically, then protoconcepts are meant to bridge it.

Remember that there are three things, in particular, that concepts possess and protoconcepts are meant to lack:

- *productivity*: a finite number of concepts are nevertheless sufficient in number to give rise to unboundedly many complex concepts and, at least in the case of linguistically minded agents, propositions;
- *revisability*: concepts are open to (if not in a continuous state of incremental) revision, and also subject to obsolescence;
- *spontaneity*: concepts are substantially (though far from entirely!) under the control of the agents possessing and employing them.

The *Protoconcept Hypothesis* is that, given the appropriate environment and the appropriate interactions with that environment, a very small set of innate protoconcepts (or, if you will, protoconceptual abilities) can give rise to the most richly structured of conceptual frameworks.

Just how many do we need? It would seem as though we are predisposed to encounter the world in terms of (abstract or concrete) objects or entities (relatively stable or even static), (abstract or concrete) happenings (relatively dynamic), and properties of one or the other. So I propose three basic protoconcepts: *proto-objects*, *proto-happenings*, and *proto-properties*.¹⁷ In English, *proto-objects* map conveniently to the grammatical category of nouns, *proto-happenings* to verbs, and *proto-properties* to adjectives and adverbs (along with, of course, prepositional phrases that play the role of adjectives or adverbs). Other languages will map things differently, so there are e.g. languages in which nouns and verbs are said to fall into the same grammatical category. This is not a problem as the road from protoconcepts to concepts to language is meant to be a long and far from straightforward one. The point is that *every* language can express concepts deriving from

¹⁷ For further details, see (Parthemore 2015 *in press*). I choose these labels to distinguish these entities from *objects*, *happenings*, and *properties*, which are universally lexicalized. Protoconcepts are not usually lexicalized at all; rather, they are presupposed and normally all but entirely out of sight. They are the far more basic core essence behind the universally lexicalized concepts identified by Natural Semantic Metalanguage theory (Wierzbicka 1972).

these three broad categories and – more controversially – no concepts exist that cannot be traced back to one of these three.

Add to these a few derivative protoconcepts. For example, to make sense of proto-objects or proto-happenings, one needs three abstract proto-objects: *proto-time* and *proto-space*, both of which can be described along *proto-dimensions*. Putting this another way, we are born with a basic sensitivity not just to objects, happenings, and properties, but to space and time, along with their basic configuration.

Two types of proto-space are needed: *proto-physical-space* for locating concrete proto-objects and proto-happenings and an analogous *proto-conceptual-space* for locating proto-properties along with abstract proto-objects and proto-happenings. Two contrastive pairs of proto-properties are needed: *proto-static/proto-dynamic* and *proto-abstract/proto-concrete*. All of these are so basic, I believe, that it really is impossible to imagine conceptual thought without them. Finally, some basic connectors are needed for joining these together, breaking them apart, and comparing/contrasting them: including an addition-like operator ($a + b$), a successor-like operator ($a \rightarrow b$), an exclusive-or-like operator ($a \text{ XOR } b$), and an equals-like operator ($a = b$). The result is a minimally structured logic both far simpler and at the same time far more expressively powerful than existing formal logics.

Briefly, then, how does one get from protoconcepts to fully fledged concepts, taking the developing individual as the most easily observable case? (We have not been around long enough to have much experience of species evolving.) The story begins with sensorimotor engagements but, *contra* Gallese and Lakoff (2005), sensorimotor engagements are not enough. Why not? Because even our most seemingly concrete of concepts (Gallese and Lakoff's choice of examples is GRASP) is, in very important ways, different from any specific instance of its application: among other things, this difference is what allows us to grasp both concrete objects (including ones whose shape and nature is unlike any we have seen before) and abstract ideas.¹⁸

Gärdenfors (2004: 205) describes the problem as one of how the agent generalizes from discrete observations to general principles. As he implies, the movement from protoconcepts to initial concepts to higher-order concepts (concepts of concepts) is largely an inductive-driven process. It is, at the same time – to borrow one of the better ideas of Daniel Dennett (1991) – an iterated process of pattern recognition driven by a notion of salience grounded, most likely, in the survival of the organism. From

¹⁸ For further details, see (Parthemore 2014).

patterns to patterns of patterns to patterns of patterns of patterns to patterns that lose themselves within patterns, one moves from concrete sensorimotor engagements to increasingly abstract thought. In the language of Gärdenfors' Conceptual Spaces Theory (2004), it is the progressive partitioning and re-partitioning of an initially minimally partitioned *conceptual space*. With each step, the agent steps further back from the present moment and further away from "life in the moment". The present moment itself, and the agent's general notion of "moment" as the minimally individuable unit of time, become increasingly stretched out.

6. Asking the unaskable question

In this paper, I have taken what I consider to be the germ of truth in the heart of Fodor's conceptual nativism and notion of mentalese, and in McDowell's conceptualism; and I have used it to make a case for an extremely minimal protoconceptual structure – protoconceptual, because it fails the usual criteria for being conceptual. That is, protoconcepts are effectively hard-wired into us as individuals and, by extension, as a species. We could not be the conceptual agents nor the conceptual species we are if we were not predisposed to look at the world in certain ways and not in others. Those innate dispositions could reflect the nature of the mind-independent world, as the natural-kinds philosophers and the metaphysical realists are inclined to have it; or they could simply reflect the nature and limitations of our conceptual abilities – living in a world that, on many accounts, continually outstrips our capacity to explain it, or at least to explain it *completely* and *consistently*.

Pretend, for a moment, that we could set our hard-wired protoconceptual nature aside. What if those dispositions did *not* reflect the nature of the mind-independent world; in which case, what if they were different? What if we did not perceive the world around us in terms of objects or happenings or properties of either but carved it up in some quite different way? If such a thing were indeed possible, then the resulting conceptual frameworks truly would be *completely incommensurable* with our own. Where there is complete incommensurability there can be, by definition, no mutual understanding.

The so-called Fermi Paradox asks why, given the apparent size of the visible universe and the number of presumably habitable planets, we have not encountered another "intelligent" species – which is to say, with proper deference to the delphinids, corvids, parrots, and great apes, another species with distinctively *human-like* intelligence and a similar capacity for an

interest in the technological. The more intriguing question might be, having encountered such a species, whether we would even recognize that we had done so.

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