Linguistic Structure and the Languages of Thought

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March 2, 2023

Abstract

Quilty-Dunn et al. identify a cluster of traits (discrete constituents, predicate-argument structure, role-filler independence, logical operators, inferential promiscuity, and abstract conceptual content) characteristic of 'language-like' psychological states and processes, and marshal a wide range of empirical evidence that seems best explained by the positing of psychological systems with these properties. As they note, however, (see also Mandelbaum et al. (2022)) there are many different ways that mental systems could exemplify these properties. Specifically, even within the genus of 'language-like' systems, there are a wide variety of possible specific formal structures, or formats. The methodology they endorse for identifying and classifying mental systems involves identifying an organism's behavioural and cognitive capacities, and seeing which sort of mental format would best account for these. While they are rightly keen to stress the difference between claims that some organism thinks in a language of thought and that this organism thinks in *natural* (i.e. human) language, and of course

to avoid 'quibbling' about whether some 'language-like' system is *really* a language, this opens up the possibility of explaining a range of specifically human cognitive capacities by appeal to the apparently unique formats made available by natural language. In these brief comments I will point in some suggestive directions along these lines.

The cluster of traits identified by Quilty-Dunn et al. seem most apt to characterize systems with roughly the structure of predicate logic. They specify an n-place predicate, and n arguments, generating the traditional philosopher's notion of a proposition, which can then serve as an input for further combination and manipulation, such as logical inference. From the perspective of linguistic theory, such structures are more closely analogous to a Verb-Phrase (VP), the domain of lexical content, rather than a complete sentential clause. A fairly widespread, although controversial, view in generative linguistics (see e.g. Wiltschko (2014)) is that in addition to the lexical domains which specify, roughly, events and their participants, human linguistic structures contain a 'functional spine', the locus of a range of linguistic features including inflection, mood, force, and more. If these aspects of linguistic structure are indeed distinctive of human language, this raises the possibility that we might be able to appeal to them in explaining aspects of human cognition not found elsewhere in the animal kingdom, along the explanatory lines described by Quilty-Dunn et al. Where we find distinctive formal structure, we can seek distinctive cognitive capacities to be explained.

Of course, linguists posit such structures precisely to appeal to distinctive human cognitive and behavioural capacities involving our use of language. But, if certain hypotheses connecting human language to human thought more generally are along the right lines (e.g. Carruthers (2002), Chomsky et al. (2019), Dupre (2020)), our explanatory reach may be greater, and we may be able to explain distinctively human, but intuitively non-linguistic, capacities by appeal to the

mental structures made available by our linguistic faculty.

Consider, for example, the Inflectional-Phrase (IP), one of the most prominent constituents of the functional spine. On one standard view, the primary functional of IP is to 'anchor' the event-description provided by the VP to features of the discourse (see e.g.Enç (1987), Ritter & Wiltschko (2014)). Most commonly, this involves tense-marking, locating the described events in time, relative to the time of conversation, but other options appear to be available, anchoring described events spatially or relative to conversational participants (Ritter & Wiltschko (2009)). Such anchoring appears to be required by the structures and operations made available by the language faculty, even in superficially tenseless languages (see e.g. Matthewson (2006), Sybesma (2007)).

If, and these are big 'ifs', human thought is structured by human language, and if human language requires anchoring, this is suggestive of a unification of language and one of the other allegedly unique capacities of the human mind, namely 'mental time travel'. No other animal has uncontroversially demonstrated the ability to associate specific event-type representations with times and individuals the way humans do in episodic memory (see e.g. Roberts & Feeney (2009), Hoerl & McCormack (2017) for reviews). If the structures of non-human cognition are well-characterized by the propositional structures described by Quilty-Dunn et al., whereas human thoughts are structured by the functional hierarchy posited by generative grammarians, this could go some way to turning two unique features of human cognition into one: our ability to anchor our memories to specific temporal windows may be, or be causally/developmentally related to, our ability to form linguistic structures with an IP serving precisely this function.

Of course, much more work would need to be done to turn this suggestive similarity into a substantiated empirical hypothesis. And all of the work I have appealed to here is highly controversial. But I believe that the framework for

psychological explanation provided by Quilty-Dunn et al. provides a highly productive way to bring to bear the results of contemporary linguistic theory onto questions in comparative psychology, in this case and a wide range of others.

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