Crediting Animals with the Ability to Think: On the Role of Language in Cognition

A Commentary on Adina Roskies

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Davidson's argument for the claim that animals cannot be credited with beliefs rests on the assumption that possessing beliefs—as propositional attitudes—presupposes the possession of language. Based on Roskies' reconstruction of Davidson's argument, I want to discuss the implications of overemphasizing the role of language in thinking. I will offer a (tentative) explanation as to why this overemphasis occurs, namely due to a preoccupation with the way we experience ourselves while thinking or "having thoughts"; I further attempt to defend why a bottom-up strategy for the investigation of thought-invoking mechanisms might be a more promising way to study thought and the role of language therein.

Keywords
Beliefs | Concept of belief | Davidson | Human cognition | Language | Mental representations, | Metacognition | Non-linguistic creatures | Propositional attitudes | Thought

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1 Introduction

What are the defining differences between human and animal cognizers? This concern has driven philosophers and scientists for a long time,[1] well before Darwin's (1871) theory of evolution and its inherent claim of developmental continuity between the species. The prevailing intuition has been, and often still is, that even though we stand in a direct developmental line with other mammals in a physiological sense, our cognitive and affective abilities far exceed theirs, not only in a quantitative, but also in a qualitative sense. Criteria to support this notion are frequently sought in an array of special cognitive abilities, such as the ability to speak (e.g., Savage-Rumbaugh et al. 1985), the

1 See for example, Aristotle's *De anima*.

possession of concepts (e.g., Newen & Bartels 2007), or behavioral traits like altruism or cooperation (Hamann et al. 2011; Warneken 2013; Warneken & Tomasello 2009). All of these are to varying degrees attributed to humans, but are either to a much lesser degree or not at all ascribed to animals, thus representing the cornerstones of the critical divide between "us" and "them" (Hare 2007). The problem raised by Davidson and discussed by Roskies concerns the special case of beliefs and the general case of the attribution of propositional attitudes to nonlinguistic creatures.

According to Davidson, it is only in the domain of human cognition that we can sensibly apply the notion of thinking. His reasons for holding this conviction are manifold, as Roskies uncovers beautifully in her treatment of Davidson. The general line of argument will be sketched out and discussed below. Roskies refutes Davidson's arguments mainly on empirical grounds, with the aim of establishing that nonlinguistic animals can be cognitive agents with beliefs and mental representations, which function as kinds of propositional attitudes. In this commentary, I would like to complement this line of reasoning by questioning what it takes to credit human cognizers with thoughts; or rather, what we consider to be the prerequisites for attributing thoughts and beliefs to humans. Davidson puts much weight on the possession of language. Here, I want to argue that focusing on language as a necessary cognitive instrument for being able to think poses a methodological barrier for examining what the human ability to think actually amounts to. Stressing the point that the introspectively experienced properties of thinking, a term that requires careful consideration in itself, should not be identified with and reduced to experiencing inner speech, I want to show that our understanding of what thought is needs to be complemented by a bottom-up investigation into the neural processes and mechanisms that produce higher cognitive states, such as thoughts. I argue, therefore, that our introspective access to the way thinking presents itself to us as thinkers is only one part that needs to be considered. What is required in order to understand the phenomenon of thinking is first a suitable conceptual framework of the notions "thought" and "thinking", which distinguishes between their intentional and phenomenological aspects, i.e., between the content of propositional attitudes and the phenomenal states of subjects making use of these attitudes. Second, we need to show how the sub-personal and personal levels of these factors can be distinguished from each other in order to show if and how they are interconnected. These considerations will be discussed in detail after a review of Roskies's discussion of Davidson's account of language and belief.

2 Roskies' reconstruction of Davidson

What Roskies dubbed Davidson's Master Argument is a reconstruction of Davidson's position, capturing in a nutshell both his basic assumptions about how we understand others and the background to his claims about human cognition. As Roskies puts it:

> According to Davidson's interpretationism, having beliefs entails being an interpreter. The basic idea of the Master Argument is that possessing certain concepts is a prerequisite for being an interpreter, and that an organism must have language in order to have these concepts. [...] the Master Argument links thought to language by way of higher order thoughts. Specifically, Davidson suggests that a concept of *belief* is a prerequisite for propositional attitudes, and that a concept of belief is unavailable without language. (this collection, pp. 6–7)

According to Roskies, then, Davidson is forced to endorse the view that a cognizer must know what beliefs are in order to have them. Can Davidson's view be sound? It might be correct to claim that a cognizer must possess the concept of belief to recognize *herself* as having them or to be able to attribute such a state to herself. This seems to be an act of metacognition, in which a subject scrutinizes her own mental states and recognizes them as mental states of a special kind. But is having the concept of belief necessary for first-order cognit-

ive acts, i.e., simply believing a proposition of some kind without reifying this state *as* a belief state?

Before delving into this line of thought, let us review Roskies' structural reconstruction of Davidson's Argument.

M1 If S has propositional attitudes, then S has beliefs.
M2 If S has beliefs, then S has a concept of belief.
M3 If S has a concept of belief, then S has language.

MC If S has propositional attitudes, then S has language.

M1 seems to be correct, if a belief is seen as a paradigmatic kind of propositional attitude.

M2 is a critical premise of Davidson's Master Argument, as we have already indicated above. The question in play here is: does having a belief automatically entail the possession of the concept of belief? We will discuss this point once again further below.

M3 is refuted by Roskies with the help of studies on false belief comprehension in prelinguistic infants (e.g., Onishi & Baillargeon 2005). However, a further point might be made here: M3 might indeed hold if having any concept at all implies the possession of language. However, there are models of non- and pre-linguistic concept possession (cf. Mandler 2004; Newen & Bartels 2007), which allow us to explain concept acquisition during development; theories presupposing language as necessary prerequisite for the possession of concepts, however, fail to do so.

Roskies' main criticism targets the notion of the "concept of belief". She aims to show that Davidson employs the concept of belief inconsistently throughout his argument. If this is so, then the argument fails due to equivocation.

According to Roskies, Davidson's conception of belief can be understood in three ways. She distinguishes three kinds of conceptions of belief: "on this robust view, having a concept of belief is an epistemologically-rich notion that entails having an ability to pass the 'false belief test'" (this collection, p. 7); the so-called deflationary conception, in which "belief can come apart from reality", (ibid.) and which amounts to "having the concept of an objective reality"; and last, the so-called intermediate concept of belief, which "involves the ability to attribute representational mental states to oneself and others", (ibid.). The intermediate concept of belief, as its name implies, is intended to be a weaker notion than the robust one. In the remainder of the paper, Roskies deconstructs each reading, providing empirical examples with the aim of showing why and how Davidson fails to make his decisive point, namely, that language is a necessary prerequisite for holding beliefs.

The robust conception of belief is convincingly refuted by studies on the ability to understand counterfactual beliefs in others, as demonstrated by the so-called false belief test. Children only display the possession of a concept of belief when they pass the false belief test, usually at around the age of three to four years.[2] It is implausible, though, not to ascribe propositional attitudes to them (in a first-order sense) prior to having acquired such a robust notion of belief. It can even be claimed that they need the ability to ascribe propositional attitudes to develop a robust notion of belief in the first place. Thus, the robust conception of belief is not linked to having propositional attitudes and Davidson's premise M2 fails, if belief is understood in the robust sense.

The second reading of belief, the deflationary view, can be read out of Davidson's stance on so-called triangulation[3] as a means of understanding objects as part of a reality external to us—via linguistic interaction with another person. However, as Roskies rightly states, the ar-

2 See however, Apperly & Butterfill (2009) and Butterfill & Apperly (2013).

3 The notion of *triangulation* that appears in Davidson's later works, replacing the notion of the so-called *omniscient interpreter*, captures the idea that we can only attribute mental (propositional) attitudes to others by interpreting their utterances. In both instances, we identify contents: the content of the utterance as well as the content of the underlying mental attitude. This is, according to Davidson, a necessary unit: without an utterance, we cannot ascribe determinate propositional attitudes, which is why Davidson is committed to the view that non-linguistic creatures cannot be interpreted, at least not in a way that allows for the ascription of thoughts. This does not imply that Davidson has to negate mental states in animals, but it does mean that we cannot understand these mental states. The issue of interpretability will be raised below (see issue #3).

gumentative force of forging the link between language as a means of recognizing the external as external, making it thus objective, is quite weak. Further, it would strike us a bit of an overreach, if not as absurd, to assume that non-linguistic creatures cannot develop any sense of the external world as being external to them.

The third and final understanding of belief à la Roskies, the so-called intermediate view, stating that animals understand other animals as having mental representations of some sort, which are behaviorally relevant, rests on empirically undecided ground; here, however, the tight connection between having beliefs and possessing the concept of belief is called into question.

Having a concept of belief might be important for reflective capacities, as we want to attribute them to rational agents that must be capable of justifying their actions, but not important for having beliefs:

> perhaps being a believer requires being able to think of oneself as a believer, and thus requires the concept of belief. [...] However, while there are arguments that the ability to think about oneself as a believer is required for a rich construal of theoretical rationality (see Bermúdez 2003, Ch. 7), there is no clear argument why such reflective ability should be constitutive of having beliefs. (Roskies this collection, p. 11)

Roskies has thus shown that the connection between propositional attitudes and the possession of a concept of belief (and its dependence on language possession), which Davidson tries to establish, cannot be held in light of the diverging readings of the notion of the concept of belief. Thus, Davidson's strategy fails.

3 Beyond animal cognition: The case of understanding human thought

Davidson's standpoint, from which his thesis makes sense and is plausible, begins from his assumption that "radically different representation schemes" (Roskies this collection, p. 2) govern in animals and humans.[4] However, such an assumption clearly opens up a plethora of new issues. Roskies targets these by drawing attention to the empirical concerns mentioned above, thereby showing that an empirical foundation to support Davidson's background assumption is missing.

To my mind, these further issues resulting from Davidson's background assumption are the following:

1) How can we defend the intuition that animal and human cognition differ in kind? In order to defend this view, it would seem that one needs to identify a distinguishing criterion that can account for the diverging representation schemes. It also has to be shown that this factor is responsible for abilities that one group of cognizers has and that is at the same time missing in the other group. If language possession were to count as such a factor, it remains to be shown which abilities hinge on its possession and execution. At the same time, following this approach, it apparently needs to be established that no non-linguistic creature cannot execute a similar ability, not even in a partial or proto-form. This difficulty leads us to issue 2:

2) How can we understand representation schemes in animals if we do not suppose a kinship to our own cognition? As Roskies rightly states, we cannot but credit animals with numerous cognitive abilities, given their at times complex and often obviously intelligent behavior. Interpreting this behavior without acknowledging any dependence on sensory states, memory, and certain motor skills, affects, and even social competencies, seems impossible. The representation schemes employed crucially depend on physiological implementation. If the physiological basis for the acquisition of environmental information is alike in humans and

4 The reason why Davidson is committed to this view can be derived from the triangulation argument: since animals do not possess language, we cannot attribute determinate propositional attitudes to them. We have thus no way of knowing how they represent the world, since this is not graspable to us through our usual means of interpretation. The question, however, is whether this epistemic opacity with regard to animal cognition necessarily entails the ontological statement that their representation schema are in fact different from ours, if representation schema are seen to comprise sensory and affective states as well, and perhaps even doxastic states preceding properly expressed, i.e., propositionally coined, beliefs.

animals, how different can the representation of environmental information in terms of sensory and affective representations be? Even if a complete overlap between human and animal perception cannot be argued for on the basis of isomorphisms, we can (and perhaps must) commit ourselves to the systematicity of behavioral cause-and-effect relations. It is this systematicity that leaves little room for interpreting animal cognition (at least in the sensory and affective domain) as being radically different from ours.

3) In light of Davidson's interpretationism, how much weight does language possession carry in terms of our ability to interpret other cognitive agents? When we think of how we "make sense" of another person, we rarely rely exclusively on the other's verbal utterances. Rather, it would seem that we generally seek to compare the contents of their verbal utterances with their overt behavior; we hold another responsible, as a rational agent, if her expressed intentions diverge "too much" from her behavior. Think of the following case: your neighbor tells you about his plans to save some money for the upcoming summer vacation; the next day you see him walk into the local casino where you know he spends quite some time—and usually loses a fair amount of money. In this case, we would probably be inclined to disregard the verbal utterance ("I'm saving up for a nice summer vacation overseas"), and rather take his actions (which might involve compulsion or gambling addiction) as indicators of his real motivations and driving forces.

4) Considering this case, we can ask which role the analysis of another's beliefs play in interpreting and whether verbal utterances are a true mirror of internal thought mechanisms and proper beliefs.

5) To my mind, the most salient question is whether we can understand human cognition, especially thought, with the help of notions like beliefs (regardless of whether they are faithfully uttered or not) and their conveyance via language. Since the discussion of this issue will require some space, I shall dedicate a proper section to it below.

3.1 Experiencing oneself while thinking—the bias towards language

We can understand why Davidson (and with him many others)[5] posits the possession of language as a necessary condition for having propositional attitudes. Namely, one may come to the view that the way a human cognizer experiences her thoughts is predominantly conveyed by her sense of inner speech.[6] Consider for a moment what it feels like to think.[7]

Probably the most prominent, identifiable feeling related to thinking is that of your inner voice, commenting on the world around you and the world inside you, making you feel distinct from, yet embedded within it. Let's call this phenomenon—if you can follow me here—the inner-speech view[8] with regard to thinking. I will argue that this view is misleading. Our intuitive description of what the inner-speech view comes down to is intricately linked to our ability to express the contents of our thoughts in words—the form of thoughts are, presumably, sentences that are composed of concepts and words, in our minds.

But is this identification of thought with mental speech justified? For Vygotsky (1934/1987), it is clear that there are large parts of thinking that do not rely on verbal expression: "There is a large range of thinking that has no direct relationship to verbal thinking" (Vygotsky 1934/1987, p. 115). Such a view

5 In fact, my point is here not to claim that this is Davidson's motivation proper, but that we, as philosophers, can easily fall for the language-bias, language being not only the instrument but also most often the object of our trade.

6 One might object that Davidson's focus on language is a result of his roots in British analytic philosophy. While that is certainly true, it remains to be seen where the preoccupation with language as a "window" into the workings of the mind is derived from within this tradition; I have a hunch that the inner-speech bias I sketch plays a role here as well.

7 It is debated whether there is a special (that is, a unique, proprietary and distinctive) phenomenology of thinking (cf. Bayne & Montague 2011). I suspect, however, that this debate suffers from a lack of distinction between the contents (or intentional aspects) of thought and the phenomenal aspects of consciousness. The point I wish to make is that the characterization of thought we gain through introspective observation of ourselves while thinking does not grant insight into the processes that precede and produce thoughts – and this point is neutral with respect to the question whether there actually is such a thing as a distinct phenomenology of cognition.

8 See, for example: Vygotsky (1934/1978); Watson (1920); Carruthers (2002). Inner speech in Vygotsky's view means the overlap (so to speak) of our faculty of thought and our faculty of speech (cf. Jones & Fernyhough 2006).

thus allows for other, non-verbal types of thought, such as pictorial or imagistic ones, such as come to bear, for example, in mental-rotation tasks or mental imagery (Shepard & Metzler 1971; Weiskrantz 1988; Kosslyn et al. 2006).

If these instances can be found, and identified as kinds of thinking, the hypothesis that language is the one and only tool for producing thoughts in us seems simply false. That thought is exclusively verbal appears thus as a form of theory-induced illusion. One might say that the fixation on language prompted by the analytic tradition has thus resulted in the projection of the method (the analysis of language) onto the phenomenon (the human mind).

Contemporary philosophy of mind left the method of linguistic analysis behind some time ago, and in order to get away from the language-bias we should shift our focus from the surface structure of thinking, namely its intentional and phenomenological (inner-speech) characteristics, to the sub-personal level of the underlying mechanisms and production schemes of thinking.

Such a reductive approach is already in place in the numerous research efforts in cognitive science that aim at describing and explaining information processing in the brain: sensory and affective components of cognition, as well as aspects of motor behavior and memory are studied in a very promising way—in the animal as well as the human domain. The problem is that our faculty of "thinking" is in this research program a rather elusive phenomenon, for various reasons: unlike when studying the neural basis of perception, for example, thought processes cannot be studied on a cellular level, since the identification of a stimulus is virtually impossible: in vision, a stimulus is light hitting the retina, whereas the "stuff" of thought is information provided by the stimulus-processing areas, thus, an "inner-system" medium. Localizing brain areas involved in thought and thinking, on the other hand, is possible. The prefrontal cortex has been shown to be involved in planning future actions and other high-level cognitive tasks (Goldman-Rakic 1996; Fuster 2008); however, this structure is strongly connected to a wide network of other cortical areas and imaging studies show that high-level cognitive tasks often if not always result from correlated activity in multiple areas across the whole of the cortex (Fuster 2008) which makes the individuation of the "center of thought" rather difficult.

In light of these complications, it is helpful to highlight the function that higher-cognitive abilities have with regard to our overall behavior. Most researchers and philosophers would agree that what this involves is the conscious representation of objects, including the deliberate manipulation of information, retrieved from memory as well as from present and actual stimuli, for the purpose of problem solving, decision making, social interaction, communication, and action planning. The involvement of language-processing areas in the execution of these tasks has already been shown (see e.g., Goel et al. 2000)—but does this suffice to support the claim that language is a necessary cornerstone of the neural basis of higher-level cognition in humans?

When "thinking" is divided and described in terms of its functional rather than phenomenal properties, the question of how far thinking relies on our capacity to speak or use language can be replaced by the question of which brain areas and input–output relations we find involved in the faculties mentioned above. This program requires a reorientation in terms of research methods and a redefinition of the phenomenon: the phenomenological description of "thinking", e.g., in terms of inner speech, does not supply us with an understanding of its underlying processes and mechanisms. It is these, however, that we should know first before we can put our finger on the role that language (the inner and external version alike) plays in the execution and the production of the cognitive capacities listed above.

When we cannot help but attribute the ability to manipulate information in a creative way to animals and intuitively call this "thinking" (think of the Kea, a species of bird known for its curiosity and astonishing abilities in handling difficult mechanisms—they can virtually break into a safe; cf. Auersperg et al. 2009;

Huber & Gajdon 2006; Werdenich & Huber 2006) we seem to have found a satisfactory criterion for crediting animals with a form of demanding cognition, not unlike our own, even though we cannot claim to understand what it feels like or how the world represent itself to the Kea.

Such a language-independent form of high-level cognition might rule in us as well, such that it precedes the formation of beliefs we form on states of the world and their linguistic representation. It might be the case, and this is the point I want to stress in this commentary, that we fall in a systematic way for a fallacy of experienced thinking, which presents us with a linguistic representation of the contents of thought, whereas the mechanisms producing these thoughts may not rely and are not caused by speech and language involving neural mechanisms.

One can object that this is not what Davidson had in mind when he claimed that thought depends on language. Davidson's idea rests (so goes the defense) upon the assumption that language is a universal format of information processing unique to humans (in the first place) and an instance of cognition, which lies at the core of human cognition, regardless of its temporal and causal involvement in the production of thoughts. But this—so I want to claim—amounts to a phenomenological argument, even if Davidson presents it as a theoretical one. So even if language were the universal format of human thought, the empirical basis for such a claim would be quite opaque, and any theoretical argument so far rests on this weak empirical basis.

4 Conclusion

The question of whether thought is exclusively verbal or linked to language capacity is not answerable from a phenomenological point of view, since we can think of instances of mental symbol-use that do not rely on language; on the contrary, we know that language "fills in the void", so to speak: when we acquire language, it fulfills the cognitive demands to express references and relations among them. In this view, thought and thinking precede the linguistic representation of the involved concepts.

If one wants to follow this line of thought, it remains to be shown how the Davidsonian *dictum* that animals do not have a special form of cognitive ability, namely, propositional attitudes such as beliefs, desires etc., relates to the general argument on higher-cognitive faculties, which do not depend on language possession and which are of the same kind across the animal and human realms. It would thus have to be argued for a language-independent form of propositional attitudes.

Does the inner-speech bias bear not only on thinking at large but also our self-attribution of desires and beliefs? It might. Roskies rightly raises the question, contra Davidson, of whether all our beliefs have definite content (this collection, p. 6). In my view, as soon as we hold a belief *qua* belief, some kind of cognitive meta-representation must come into play. Such a form of meta-representation strikes me as probably being conveyed by the inner speech mechanism and as thus being subject to the phenomenological inner-speech fallacy.

Roskies nicely disassembles Davidson's arguments and reconstructs them in a clear and easy-to-follow fashion. She exposes their argumentative weaknesses (such as the issue of interpretation and behavior) and provides ample empirical examples of, and conceptual arguments for, why we should not follow Davidson in his assessment of animals' cognitive abilities. However, I have tried to show that a further underlying claim can be made, namely that not only is animal cognition a matter of speculation, but that even our own inner workings are less transparent than we commonly like to assume. Davidson's claim rests, to my mind, on the rashly embraced yet unfounded assumption that language plays a key role in higher cognition in humans (1984, 2001). In my view, contemporary research efforts in the cognitive sciences, but also in philosophy, undermines—or at least calls into question—this assumption. Certainly we are dealing with an important philosophical claim, which could only be properly backed up by extensive empirical evidence pointing to the ubiquitous involvement of language-processing

brain areas and mechanisms in higher-level cognitive tasks such as decision-making, action planning, deliberation, etc. Doubtless, human cognition benefits from the linguistic format; abstract thoughts about, e.g., liberty can probably only be executed at a significantly deep level if the relevant concepts have been provided by a linguistic community. But the need to express a certain feeling, like freedom as the opposite of (the feeling of) constraint, for example, certainly originates in a pre-verbal or non-verbal manifestation of this feeling.

Focusing on language, therefore, blocks a fuller examination of what thinking in humans amounts to. We have, I believe, misled ourselves in the face of the phenomenology of inner speech as to what it is like to think, for us as humans. But this gets us only part way towards a full understanding of the underlying mechanisms, structures, and sources of thoughts.

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