

Review of José Luis Bermúdez: *Thinking without Words*

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PSYCHE 11 (2), March 2005

REVIEW OF: José Luis Bermúdez: *Thinking without Words*. Oxford: Oxford University Press. 242 pp. \$39.95 hbk. ISBN 0195159691.

KEYWORDS: thinking, non-conceptual content, concepts, metacognition

Abstract: Cognitive sciences such as developmental psychology, cognitive ethology and cognitive archaeology continuously produce evidence of high-level thinking in non-linguistic creatures. José Luis Bermúdez applies this evidence in formulating a philosophical theory of non-linguistic thought, the main elements of which I summarise here. While I agree with most of the positive aspects of his theory of non-linguistic thought, I argue that the negative aspects of his theory—according to which non-linguistic creatures are denied metacognitive capacities—fails to take into account the evidence from aphasia. I conclude by offering a way of conceiving of non-linguistic metarepresentational thought.

1. The Heritage of the *Paradox*

In his second full-length monograph, *Thinking without Words* (or *Thinking* for short), José Luis Bermúdez formulates a systematic philosophical theory of non-linguistic thinking present in animals, pre-human hominids and infants. I shall review the theory here in the following order. In the rest of this section, I shall lay out the background on which Bermúdez builds his theory. Section 2 contains a systematic description of the positive theory of non-linguistic thought as Bermúdez presents it. He convincingly shows that non-linguistic creatures such as non-human apes and non-linguistic hominids engage in tasks that require high-level thinking in the form of planning and instrumental conditional thinking. Then, in section 3, I move on to the negative aspects of the theory,

to the limits of non-linguistic thought. In section 4, I shall attempt to show that Bermúdez does not succeed in drawing the limits of metacognitive thought correctly because he neglects evidence from aphasia. Then, I shall present a way of making non-linguistic metarepresentational thought intelligible that is in line with the evidence from aphasia. This theme leads to the issue of non-linguistic *conceptual* thinking. I agree with Peter Carruthers's (2000b) view that although Bermúdez's earlier book, *The Paradox of Self-Consciousness* (*Paradox* for short), "is an excellent book" it was also an "opportunity missed" because it adhered to the conviction that all concepts must be linguistic.¹ This time, Bermúdez's strategy is to sidestep the issue by formulating his main theses in such a manner that he would not commit himself to any account concerning the relationship between concepts and language. In section 5, I shall show that Bermúdez's attempt to sidestep the question of whether concepts must be linguistic is not as successful as he would like.

In *Paradox* Bermúdez showed that self-conscious thought exists at birth in human beings as egocentric spatial maps. Drawing on experimental data from developmental psychology and cognitive ethology, Bermúdez highlighted the independence of the most primitive forms of self-consciousness from language. *Thinking* continues the theme of "the rudimentary capacities underlying the fully-fledged capacities." This time Bermúdez lays out a theory of non-linguistic thought underlying linguistic thought, relying largely on theories from developmental psychology, cognitive ethology and cognitive archaeology.

The idea of non-linguistic thought prevails in the cognitive and neurosciences, but not so in philosophy. This book is written for philosophers. It represents *philosophical naturalism*, the line of thought that Bermúdez has defended elsewhere in more detail (1995a, 1995b, 1998, 2000). Bermúdez has argued, mainly on the grounds of the inseparability of syntax and semantics, that conceptual and empirical research cannot be separated. Conceptual analysis in the form of transcendental arguments (arguments concerning conditions of possibility) and thought experiments is often criticised for merely reflecting our own intuitions and their implications rather than the things that those concepts are about. In Bermúdez's view, solid co-operation of conceptual analysis and empirical sciences can make up for this deficit. Instead of trying to demarcate philosophical explanation from psychological explanation, as was the general spirit at the turn of the 19th and 20th, Bermúdez thinks that philosophical analysis, thought experiments and transcendental arguments should engage with empirical data. Philosophical naturalism follows the dictum that conceptual analysis should be empirically constrained and philosophically rigorous. I am very sympathetic to this line of thought, and agree with Bermúdez that psychology and philosophy should not be

¹ Carruthers is not the only person who has refused to buy Bermúdez's proposal of the relation of concepts and language. In the preface of *Thinking* (p. vi), Bermúdez mentions that "[the] basic idea of chapters 8 and 9, that intentional ascent requires the capacity for semantic ascent, was arrived at in Paris during various meetings of the Action, Perception, Intentionalité, Conscience (APIC) seminar – in response to the refusal of participants in the seminar to believe the arguments of *The Paradox of Self-Consciousness* for the dependence of conceptual thought on language".

placed on separate explanatory levels. This kind of approach is further defended in *Thinking*.

2. Thought Without Language

Bermúdez starts by showing that Morgan’s Canon, the prevailing minimalist methodologist principle of comparative psychology from the end of 19th century according to which we must interpret the behaviour of non-linguistic creatures by the lowest-level mechanism possible, has been overshadowed by the recent cognitive turn. Because of the volume of evidence that the cognitive sciences investigating non-linguistic creatures have provided, “there is no turning back to Morgan’s Canon” (p. 7). He then proceeds to lay out four *desiderata* that a philosophical theory of thought has to meet. The same desiderata concern a theory of non-linguistic thought as well. First, the theory must specify what kind of entities thoughts are. This is the *metaphysical* problem of thought. Second, it must address the *semantic* problem of how thoughts can have meaningful contents. The third task is to answer the *epistemological* question of how we can individuate those contents. Fourth, and finally, it must account for the *explanatory* dimension of thought – how thoughts function in decision-making processes.

There are some existing philosophical theories of non-linguistic thinking in animals and infants that Bermúdez has to deal with first. These he calls minimalist or deflationary, theories². They link non-linguistic thought to perceptual information as opposed to conceptual information. This kind of thinking offers only limited flexibility in relation to the environment and does not offer any means for long-term purposeful action, planning or action. These are drawbacks in a theory of non-linguistic thought because some non-linguistic creatures clearly exhibit planning and intelligent action. The most striking example is tool-use, which is present in non-human apes and non-linguistic human species, and which cannot be explained by the conjunction of mere motivational and perceptual states. Bermúdez aims further than the previous attempts, and pushes the limits of non-linguistic thought to cover this kind of instrumental thinking.

Bermúdez then proceeds to outline a theory of non-linguistic instrumental thinking that meets the four aforementioned desiderata. Applying success semantics, Bermúdez satisfies the metaphysical and semantic desiderata of non-linguistic thought. According to the pragmatist idea of success semantics, the meaning of a thought is determined by how well it translates motivation into desired action. As Bermúdez correctly points out, however, the determinate content of such thought will remain a mystery, as there is always an indefinite number of possible ways to characterise the content. It merely shows that there are thoughts and can only provide a starting point for the individuation of thoughts. In order to meet the epistemological desideratum of a theory of non-linguistic thought, it requires a (theoretical) supplement with which the individuation of the thoughts becomes possible.

Forms of high-level thinking such as planning and conditional thinking require a capacity to discern coherent whole objects from “bundles of features” in order to use

² As examples of this kind of minimalist position Bermúdez mentions the Gibsonian ecological theory of perception (1979) and the causal indexicality account of John Campbell (1994).

them in the planning of intelligent action. The concept of *reification*, which Bermúdez adopts from Quine, makes up for the incompleteness of the success semantics in explaining how we can individuate thoughts. Quine introduced reification as a means of seeing an object as a whole body rather than as a mere sum of its features. Such a capacity is realised, according to Quine, by the linguistic capacities of pronominal reference and quantification. Bermúdez, in contrast, thinks that a sort of reification is also available at the non-linguistic level. The non-linguistic ability to reify the objects of thought is realised by grasping the higher-order principles that govern the object as a whole. Grasping the cohesion of the object, the tendency to follow a certain trajectory when moving, and other similar higher-order principles that developmental psychology has shown to be present in non-linguistic infants, are forms of reification, grasping the object as a whole body, which require no linguistic reference or quantification. By drawing on the experimental data of dishabituation experiments Bermúdez nicely illustrates how reificatory capacities appear early in the cognitive development of infants.

The defect of the concept of reification is that it can explain only what *types* of thoughts are available at the non-linguistic level. It cannot determine the exact content of thoughts in individual behavioural *tokens*. The epistemological level, then, needs a further supplement that makes up for this defect. Bermúdez points out that, in order to account for the epistemological dimensions of thought we must determine the distinct way in which a certain creature grasps the object of thought. The distinct way is, in Bermúdez's account, the *mode of presentation* of the object. The mode of presentation would suffice as content that could be applicable in the explanation of behavioural tokens. The problem remains of how to individuate the mode of presentation. Bermúdez takes reification to explain the nominative component of thought (grasping an object as a whole particular) but it cannot help in determining the mode of presentation (the predicative component of thought).

Here, Bermúdez introduces the concept of *projectability* and suggests that it serve as a way to determine the mode of presentation. First, we must give a set of possible descriptions of the behaviour in a way that each description shares the nominative component but differs only with respect to the predicative component. Then, by the procedure of elimination, for example by using a suitable experimental design, we should end up with the most accurate—or the most *projectable*—description of the behaviour. The description should then yield the content of the mode of presentation in a manner that suits the epistemological purposes of the theory of non-linguistic thought.

To complete his positive theory of non-linguistic thought, Bermúdez proceeds to characterise the explanatory dimension of the theory. He discusses the kinds of practical reasoning abilities and inferential rules available at the non-linguistic level. These rules are applicable in the psychological explanation of behaviour of non-linguistic creatures. Bermúdez shows that instrumental beliefs offer a level of rationality that permits context-free inferential thinking and exceeds the levels of rationality of cost-benefit analyses conducted on the behaviour of animals. This latter kind of rationality requires no genuine thinking but only the following of some hard-wired behaviour patterns. It is tied to contextual and perceptual information as in the minimalist approach to non-linguistic thought.

At the level of instrumental belief, a form of negation is available in the form of mastering contrary concepts like <present> versus <absent> and <same> versus <different>. Animals exhibit this kind of ability, for example, in inferring from the presence of conspecifics the absence of the predator. Bermúdez nicely demonstrates that this kind of negation is predicate-negation (“Socrates is unwise”) as opposed to sentential negation (“It is not the case that Socrates is wise”), following the famous Aristotelian distinction. Predicate-negation does not require language but sentential negation does. It also requires, according to Bermúdez, taking a thought as an object of thought, and according to Bermúdez’s this is not possible at the non-linguistic level (see section 3).

Animals also pick up regularities in sequences of events, and this offers a way of conditional thinking. The regularities, either in absolute or probabilistic form, offer a rudimentary concept of causation that is non-linguistic in nature. Taken together, protonegation and proto-causation, both of which occur in non-linguistic instrumental thinking, support three forms of logical inferential rules: *modus ponens*, *modus tollens* and disjunctive syllogism. The psychological explanations of non-linguistic instrumental thought should apply these three inferential rules.

The above presents, in a condensed form, Bermúdez’s positive theory of non-linguistic thought. I have nothing to complain about as far as most of the aspects are concerned. On the contrary, Bermúdez does what has waited a long time to be done, namely, he widens the scope of non-linguistic thought in analytic philosophy. The case he builds is strong and highly interesting, and it lies on firm conceptual and empirical ground. Nevertheless, I am not quite sure whether he gets as far as he should. The case he makes for the negative aspects of the theory seems to contradict some existing data on non-linguistic thought.

3. Bermúdez on the Limits of Thought Without Language

In chapters 8 and 9 Bermúdez sets the limits of non-linguistic thought. His main argument is that metarepresentational thought, or in Bermúdez’s choice of words, “intentional ascent”, depends on language.³ More specifically, for metarepresentational thought or intentional ascent to be possible, a (first-order) thought requires a *suitable vehicle* by which it can be held in mind so that a (higher-order) thought can be directed to it. Moreover, only language provides the kind of vehicle, which renders metarepresentational thought possible – “intentional ascent” requires “semantic ascent”.

As the only imaginable alternatives for a suitable vehicle, Bermúdez considers Johnson-Laird’s “mental models” account of thought and Braddon-Mitchell and Jackson’s (similar) mental maps theory. These theories take thought not to be language-like but rather in pictorial form; that is, isomorphic to what it represents. The problem, according to Bermúdez, concerns the thesis of the structuredness of the mental models that allows inferences and their evaluation: “[T]heir (mental models and mental maps) structure is derivative. It is derived from the premises that they are modelling. The models are constructed from constituents and properties that feature in the premise being

³ I shall use the terms “metarepresentational thought”, “intentional ascent”, “higher-order thought”, “second-order cognitive dynamics”, “metacognition” and the like largely interchangeably.

modelled. And those premises are of course linguistic entities” (p. 163). Therefore, the mental models can connect to one another only in a sentential manner. So, the mental models theory ultimately collapses into a special form of linguistic thinking. Bermúdez insists that the vehicles of metarepresentational thought in all their forms can be available only to language-using creatures because there is no non-linguistic alternative available as a vehicle for such thoughts.

I fail to see why imagistic thinking is derived from sentential or pictorial thinking composed of linguistic entities, as Bermúdez maintains, rather than the other way around. Moreover, I especially fail to see why metarepresentational thought that Bermúdez refers to here concerns only inferential thinking. Why would all second-order cognitive dynamics involve inferential relations? Leaving these questions aside, I think Bermúdez does not exhaust the alternatives. More precisely, Bermúdez concedes that there is metarepresentational thinking that has sensations and mental images as objects, but he does not consider sensations and mental images as instances of genuine thinking. He thinks that “we are not [...] ever conscious of *propositional* thoughts that do not have linguistic vehicles” (p. 160). Restricting the scope of thought this way, however, Bermúdez leaves no room for thinking that has no propositional structure involving, for example, only nominative and predicative components as in his own theory of non-linguistic thought. I will come back to this in more detail in section 4.

Bermúdez rightly points out that metarepresentational thought is not a monolithic phenomenon. He lists three forms of *explicit* intentional ascent. Two of them, second-order beliefs and second-order desires, are intrasubjective, directed to one’s own beliefs and desires. The third form of explicit intentional ascent, theory of mind (TOM), is intersubjective and necessary for understanding others.⁴ In addition to these explicit forms of intentional ascent, Bermúdez maintains there are several forms of *implicit* intentional ascent. All of them involve modes of complex compound thoughts where entire thoughts are objects of further thoughts. Thoughts of this kind include not only truth functional thoughts (“it is true that...”/ “it is false that...”) but also involve modal, adverbial and tensed thoughts. All of these take one thought as the object of further thoughts. It is possible to counter-argue that these are not forms of metarepresentational thought because they concern the states of affairs rather than the thoughts themselves. But Bermúdez replies that, in addition to being about states of affairs, the thoughts must involve an implicit form of higher-order thinking for the evaluation of their content to be possible. Unless the thought is first taken as a truth-bearer such as *thought*, we could not evaluate whether it is true or false.

All this has the obvious implication that creatures that have no linguistic capacities are incapable of metarepresentational thought. These creatures include most mammals and birds, and the members of our species deprived of linguistic capacities, such as infants and aphasics.

4. Is there Non-linguistic Metarepresentational Thought after All?

⁴ I think it would be more correct to take one ability of explicit metarepresentational thought to be behind all of these forms (Carruthers 2000a) and talk about two ways of applying it, namely intersubjectively and intrasubjectively.

Bermúdez puts forward his argument as a transcendental argument: in the absence of any other kind of vehicle for meta-representational thought, such thinking is available only to linguistic creatures. But, in the general spirit of the philosophical naturalism advocated by Bermúdez, the argument that intentional ascent requires semantic ascent should also consult the empirical data that is available. Bermúdez does adduce *some* empirical data; he deals with the debate of TOM in non-human apes and monkeys (baboons) and concedes that the general opinion is on the side of the supporters of TOM in apes and baboons. Nevertheless, he adheres, in a spirit akin to Morgan's Canon, to a more parsimonious interpretation of this data, according to which the existence of TOM in non-linguistic animals is dubious and the data explicable by mere abilities of detecting perceptual states such as gaze-direction.

It is true that experiments with apes and baboons have not succeeded in settling the issue definitively. However, there are data bearing on the issue that he seems to overlook. First, there are experiments that suggest infants have the ability to recognise the intentions of others at the age of no more than 14 months (Meltzoff et al, 1995; Call et al, 2004). If infants see adults failing in a simple task, the infants imitate the actions not as they were performed but as they were clearly *intended* to be performed. Second, there is a recently reviewed literature on uncertainty monitoring that suggests that non-linguistic animals possess some form of metarepresentational thought (Smith et al 2003). Smith et al concede that it might seem more parsimonious to interpret their data in non-metarepresentational terms, but they argue that such interpretations are not, in fact more parsimonious. The reason for this is that they are compelled to postulate different kinds of mechanisms underlying the performances of humans and animals even when those performances are very similar. One could say that there is a beginning of a metacognitive turn, and return to the Morgan's Canon is not possible in the case of metacognition, as in the case of cognition in general.

One must concede that these data are suggestive rather than conclusive. But there seem to be yet further empirical data that are more compelling. Peter Carruthers changed his mind (from his 1996 to his 2000a) concerning whether higher-order thought is language-bound on the basis of data provided by Rosemary Varley's (1998) experiments with a-grammatic aphasic patient SA. Patient SA passed the non-linguistic version of false-belief test administered by Varley (the Smarties test).⁵ The evidence on aphasics seems, eventually, compelling enough to question the slogan "intentional ascent requires semantic ascent"⁶. The fact that the first data was obtained using notes containing single words hints at the use of language. Nevertheless, this cannot be language in the sense of Bermúdez that requires a sentential structure. Rather, it appears to be an example of thinking with a nominative component and a predicative component – an example that Bermúdez himself gives of non-linguistic thought. It seems that this level of thought is enough for being capable of forming judgments about other peoples' beliefs.

⁵ Obtained from a one-case study these results might be due to chance, but they have been further corroborated as Varley has recently replicated the results on another severely aphasic patient MR using a pictorial theory of mind test (Varley et al, 2001).

⁶ It is intriguing that both Carruthers (2000a) and Varley (1998) can be found in the references of *Thinking*.

Nevertheless, the evidence from aphasia for non-linguistic metarepresentational thinking leaves us with the following problem: What are the vehicles of such thoughts? I do not find myself compelled to answer this question in the position of reviewer. However, I cannot resist considering one possibility that I think might be a plausible alternative (those interested only in Bermúdez's theory can omit the rest of this section). Perhaps the vehicles of non-linguistic metacognition are non-linguistic *conceptual thoughts* (by which I mean mental representations in this context) that are connected to mental images. It is well known that abstract thoughts are often accompanied by specific exemplar-like mental images.⁷ Introspection reveals that the use of the concept CHAIR in thinking is often accompanied by exemplar-like mental images of chairs, none of which can cover the general content of the concept CHAIR. In introspection, a concept itself does not look like anything. This is, of course, because a single image cannot cover the whole extent of the concept. According to Jesse Prinz (2002), an imagistic account of concepts is problematic because concepts "abstract away from perceptual differences" and "[s]ome concepts designate non-perceptible entities or properties" (p. 28). Concepts are rather abstractions from several images; they recognise the higher-order principles or family resemblances that bear the more general content. Nevertheless, there can be single images associated with concepts having a symbolic function of referring to the more general content of the concepts. It has often been debated whether there can be imageless thinking at all. Moreover, it has been suggested that mental qualities serve as providers of access in the mind. In Bernard Baars's description, "all abstract concepts are accessed consciously by means of perceptual and imaginal events" and "abstract concepts have qualitative mental symbols" (Baars 1988, 244). The associated mental imagery can be of all kinds of sensory qualities: of visual pictorial form, or of auditory form of a sound. In the case of linguistic thinking, the associated imagery is in the form of inner speech.

The vehicles or bearers of content in mind, representations of the environment and oneself, are of two kinds, perception-like and non-perception-like. Perception-like representations are mental imagery, and non-perception-like representations are concepts. Thoughts can be composed of either type. Vehicles can also be divided into personal-level and sub-personal-level vehicles. Perception-like and non-perception-like representations exist at both levels, the sub-personal level containing also vehicles that are more primitive than the pictorial type, such as representations of simple features of perception instead of images of whole bodies. Personal-level vehicles that conform to meaningful entities are the ones available for introspection. Personal-level representations make up coherent units that can be held in the conscious short-term memory (STM). In STM, contents and their vehicles are available for further conceptual processing. How the representations are further processed depends on the type of concepts in question. Metarepresentational abilities are enabled by psychological concepts. In STM, the representations are available for integration with psychological concepts, perhaps by virtue of the access that the phenomenal qualities of the mental imagery provide. I suggest that it is a coherent possibility that personal level representations, their content as

⁷ This is not to say that concepts themselves are exemplars. Concepts have larger contents. Only the qualitative imagery that accompanies them is most often exemplar-like, thus reflecting perhaps the typicality effects that are often associated with concepts.

well as their vehicles, conceptual as well as non-conceptual, are open for higher-order thought in this manner. It is intelligible that concepts can connect to one another in a non-sentential manner – as nominative and predicative components of thought. A thought like this can be available for introspection and acquire a meaning of *being a thought* from psychological concepts. How should one conceive of this if not as conceptual non-linguistic higher-order thought?⁸

In order to make my proposal coherent, however, I must have a theory of non-linguistic concepts. This is the topic of the next section. I shall also argue that Bermúdez’s effort to sidestep the question of whether concepts can be non-linguistic is not as successful as he wishes.

4. Concepts without Language

The proposal I made at the end of the previous section is that concepts are independent of language. This view is incompatible both with the traditional way of conceiving concepts in analytical philosophy and with Bermúdez’s view. However, it is compatible with the conception of concepts in the cognitive sciences where few would claim that conceptual thinking requires language. Bermúdez takes concept possession to be something that requires the ability to reflect on the grounds of the concept. This, he thinks, is essentially a linguistic operation (e.g. Bermúdez 1998, 68-71). Non-conceptual content, in turn, he characterises as “content that can be ascribed to a creature without thereby ascribing to it possession of the concepts involved in specifying that content” (Bermúdez 1994). This account of the difference between conceptual and non-conceptual representations suffers, however, from at least two problems. First, the account is circular concerning concept acquisition. How is it possible to acquire concepts if that presupposes conceptual linguistic capacities? An innatist solution will not do for obvious reasons. The account also blocks the possibility of appeal to non-conceptual content. One could suppose that Bermúdez would endorse such a view himself regarding his overall position, but this view prevents him from that. A second problem is that the account is estranged from our everyday conception of concepts. This point should become clear in the following.

Most often when concepts are thought of as non-linguistic they are thought of as *purely recognitional capacities* (Carruthers 2000a, McDowell 1994). This provides a criterion for a concept to be a concept that it be an ability to discern some thing at time t1, and when confronted with it at a later time t2, identify it as the same. No language is

⁸ The picture put forward here is compatible with the global workspace theory of consciousness of Bernard Baars (1988) and the dispositional higher-order thought theory of Peter Carruthers (2000a). Carruthers puts the theory forward as a theory of phenomenal consciousness where availability of the contents of consciousness to higher-order thought or theory of mind resources give the contents their phenomenal character. I think the claim of phenomenal consciousness can be dropped, but the theory can be put to another use. It is possible to use the same cognitive architecture to explain the possibility of conceptual metacognition that requires no language. Carruthers also adheres to a Fodorian version of modular theory of mind, but I think that the same cognitive architecture is available for a less radical non-modular version of mind that nevertheless takes seriously the idea of cerebral specialisation even though it is not possible to give a constant and exact distribution for the specialisation. In Carruthers’s view, there is a distinct theory of mind module that allows processing the mental states as mental states. It is dubious whether there is such a module. Again, I think that the same general idea is available for a non-modular theory.

required in this operation because that thing could well be something that we have no word for, and this ability surely is present in aphasics and animals.

It is important to note, however, that the recognitional capacities so defined do not differ much from the higher-order principles of Bermúdez introduced above.⁹ One could object that the higher-order principles might contribute to the non-conceptual representational content of perception only for the time the perception persists and then disappear. But this is not how Bermúdez defines the higher-order principles. Higher-order principles contribute to the perceiving of objects as whole particulars. He requires them to be context-free and applicable in conditional thinking. As such, they cannot persist only for the time of perception. Now, this would not make sense if all these operations were built anew every time we have an experience of the same object.

At the risk of quibbling, it must be noted that there is at least one point where Bermúdez talks about concepts in connection with non-linguistic thinking. He talks of the *concepts* same/different and presence/absence in connection with protonegation, a form of negation available for non-linguistic creatures: “a creature can master pairs of contrary concepts (such as the concepts of presence and absence) and deploy those concepts in inferences using concepts protonegation without a full understanding of the notion of contrariety” (p. 144). He proceeds that “[i]t is no more plausible to think that the effective deployment of contrary concepts requires a theoretical grasp of the concept of contrariety than it is to demand that the effective deployment of number concepts requires a theoretical grasp of the concept of number” (*ibid.*). Here, Bermúdez undermines his own definition of concept-possession as something requiring theoretical reflection on the grounds of the concepts. Noting this is not, I think, mere quibbling, but it reflects the fact that Bermúdez’s technical account of concepts differs from the ordinary way concepts are conceived – and even from the way Bermúdez himself intuitively conceives them.

In short, the conceptual sphere could be thought of as differing from the non-conceptual sphere in that non-conceptual content makes up fine-grained perception-like representational content and conceptual content abstracts some fine-grained non-perception-like higher-order features from the non-conceptual sphere. As such conceptual capacities constitute capacities of individuating, categorising and recognising whole objects as particulars. Concepts conceived in this manner also provide a vehicle of thought that might exist both at personal and sub-personal level, and can thus provide the vehicle of thought that allows metacognition. The problem of metacognition in non-linguistic creatures would not, then, be whether they possess suitable vehicles that allow metacognition but rather whether they possess adequate psychological concepts.

⁹ It would be also interesting to further investigate how this kind of view is compatible with Prinz’s view of concepts as proxy-like detectors (see his 2002, chapters 5 and 6).

5. Conclusion

The positive theory Bermúdez develops in *Thinking* should vaporise the last doubts of the analytic philosophers concerning the possibility of non-linguistic thought. The book is excellent in this respect and that is why I recommend it to anyone still having doubts about the issue. However, I also think that Bermúdez, nevertheless, does not succeed in setting the limits of non-linguistic thinking in the right place. I have tried to provide reasons why non-linguistic creatures should not be denied second-order cognitive capacities, and a way in which the idea could become intelligible. Even my failure in the latter task, however, would not amount to a failure of the previous critique. There might be alternative ways of thinking about suitable vehicles for non-linguistic metarepresentational thought. In any case, we should not yet call a halt to the search for limits of non-linguistic thought.

I do not think, moreover, that dealing with the theme of non-linguistic thought by neglecting the distinction between conceptual and non-conceptual thinking is a good idea. If concepts do not depend on language, as I think they do not, then Bermúdez's decision to sidestep the issue seems lamentable. The scope of the book is narrowed significantly, and a more thorough consideration of the theme would have made the book more interesting. The questions concerning non-conceptual thought and non-linguistic thought are at least equally important. Bermúdez attempts to unify the two, but there seems to be no grounds for such an attempt. Because of this, this book is, despite its obvious merits and general high quality, the second—but hopefully the last—missed opportunity.

Acknowledgement

Thanks to Tim Bayne for many valuable comments and suggestions. The author was supported by the Academy of Finland (project #78566)

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