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Two Degrees of Intentionality: Approaching the Ascription of Psychological Content in Non-Linguistic Creatures

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TWO DEGREES OF INTENTIONALITY: APPROACHING THE ASCRIPTION OF PSYCHOLOGICAL CONTENT IN NON-LINGUISTIC CREATURES

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ABSTRACT

We often include intentional (psychological) states in the explanation of complex non-human animal behavior. How, if possible, should we characterize intentionality in other species without trivializing our own? I aim to develop a strategy, compatible with intentional realism, for approaching the ascription of intentionality in non-linguistic species. One way to approach the question, one rehearsed in multiple contexts, is to question the conditions under which conceptual mental representations might obtain in non-linguistic species. I follow a similar, but less developed strategy. I argue, following some recent literature, that it is likely that concepts split into (at least) two kinds. If concepts split, and if they split in the appropriate way, then we can argue from explanatory necessity and concept splitting that intentionality is not so intimately bound up with linguistic competence as some argue. Finally, I propose that if concepts split in the appropriate way, intentionality admits of degrees.

Introduction

This paper is concerned with what I will refer to throughout as the problem of intentional ascription. The crux of the problem is which creatures and systems merit the ascription of intentional mental states. I aim to develop a strategy for approaching the ascription of intentionality and psychological content in non-human, non-linguistic species.

I am a realist about intentional mental states. I take it that intentional ascriptions frequently apply (certainly in humans), that they capture something real, that what they purport to capture is in the world, and that they are subject to philosophical and empirical scrutiny. On this construal, one fundamental aim of intentional ascription is to capture mental content for the purposes of psychological explanation. Moreover, I qualify that, in addition to being a realist about intentional content, I am also liberal about representation. At least a moderate liberalism is required of any strategy aimed at vindicating psychological explanation for non-linguistic creatures, most or perhaps all of which are apparently incapable of realizing full-blown propositional attitudes.

In what follows, I will argue that the class of creatures in which concepts obtain does not consist only of language users. I have no ethical agenda. What I am proposing is that psychological explanations often afford or contribute to the best explanation of many instances of non-linguistic animal behavior. I will argue from concept splitting and explanatory necessity that intentionality is not a strictly human phenomenon, and also that intentionality is not so intimately bound up with linguistic competence as some argue.

I. The Problem of Intentional Ascription

1. Disambiguating 'Intentionality'

To keep allusions to intentionality in multiple contexts from perpetuating confusion, it is worth taking a moment to disentangle an inevitable ambiguity. The following are two importantly different senses of intentionality. On the one hand, *actions* are said to be 'intentional' when certain conditions are met. Typically, an action is described as intentional if is assumed to be an instance of goal-directed behavior by a willful and mindful agent. On the other hand, the *mental content* appealed to as part of the explanation of this kind of behavior is said to be 'intentional' as well. Typically, some states of mind are described as intentional if it is assumed that they are about something, if they take some proposition, concept, belief, etc. as an object. Roughly speaking, this is intentionality in Brentano's sense, where, in a fairly straightforward way, 'intentional' and 'mental' are synonymous.[1] When we use intentionality in Brentano's sense, we might alternate freely between '*intentional* content' and '*mental* content'.

In practice, deploying intentional ascriptions in explaining behavior is a common sensical affair. When formulating answers to 'why' questions that pertain to the behavior of a third party, we are naturally led to conjoin some linguistic expression of a proposition with some attitude toward that proposition; hence the familiar 'propositional attitudes'. The attitudes are the corner stone of folk-psychology, and we typically award at least some degree of causal efficacy to the intentional mental states to which the attitudes refer. For the purposes of folk-psychological explanation, the designation

[1] Brentano, Franz. *Psychology from an Empirical Standpoint*, transl. by A.C. Rancurello, D.B. Terrell, and L. McAlister, London: Routledge, 1973. (2nd ed., intro. by Peter Simons, 1995).

'propositional attitude' has roughly the same meaning as 'intentional mental state'. As such, the belief ascriptions deployed in folk-psychological explanations tend naturally to be expressed as *de dicto* ascriptions of intentional mental states. An ascription is *de dicto* if it attributes a content that is at least approximately captured by some *dictum*, some proposition expressible in a language. For our purposes, this is just to say that when explaining behavior, we are naturally led to map some *dictum*-plus-attitude onto any subject exhibiting behavior that is *prima facie* purposive.

Fortunately, for present purposes, we needn't be concerned with metaphysical, syntactic, or semantic modality (i.e. *de dicto versus de re*). The relevant point is just that when attributing intentional (psychological) states with the aim of explaining behavior, we frequently resort to *de dicto* ascriptions. The fact that it is intuitively difficult to understand how we might otherwise characterize intentional mental states (i.e. in the absence of language) motivates well argued answers to the problem of intentional ascription. We will look at one answer, which I take to be inadequate, in more detail below.

For now simply note that we would say, for instance, that Jones bends to drink from the stream because he believes that the water is potable and he desires that his thirst be quenched. We would say that Smith studies furiously until dawn because he wants to do well on his anthropology exam and he believes that he is not up to speed on his phylogeny. In both cases we've conjoined a proposition (i.e. that the water is potable) with an attitude orienting the subject towards that proposition (i.e. believes). We frequently attempt to characterize the intentional states of the subjects in these and other everyday sorts of contexts with *de dicto* ascriptions of psychological states. In effect, *de*

dicto ascriptions are presented as answers to 'why' questions regarding a subject's behavior. Our brief examples, given above, can be considered more or less typical in this regard.

(A) Why does Jones bend to drink from the stream? Because (we hypothesize)…

(A1) Jones believes that the water is potable.

(A2) Jones believes that it is a good time to drink water.

(B) Why does Smith stay up all night studying? Because (we hypothesize)…

(B1) Smith believes that he needs to study his phylogeny.

(B2) Smith believes that studying will help him on his test.

Note that folk-psychological explanations map such *dictum*-plus-attitude conjunctions onto a hypothesized mental state in an attempt to capture some presumably causally efficacious mental content. So, the important assumptions are that intentional mental states have content, and that capturing mental content can contribute substantially to explanations of behavior. It just is the business of psychology, at this level of abstraction, to explain behavior by pointing to what many philosophers call intentional content, and to relations among intentional contents 'in the mind' of a subject.

1.1

Here I'll pose some questions in order to frame the problem I aim to address. In the ordinary sense of intentionality, actions are said to be intentional only if they are directed toward some goal by a conscious, willing agent. Why does Jones drink from the stream?

We frequently accept explanations of the form: Jones exhibits behavior *B* because he believes *X* and desires *Y*. But, again, what do these kinds of so-called psychological explanations rely upon for their meaning and how widely applicable are they? Consider that Kanzi, the bonobo, frequently exhibits water-drinking behavior himself. Does he drink because he, too, believes *X* and desires *Y*? The problem immediately surfaces: are we free to deploy an intentional explanation in Jones' case and in Kanzi's? If not, why not? If so, how can we make sense of the marked differences in behavioral flexibility exhibited by Jones and Kanzi? How far can we extend our application of intentional explanation without making it, at best instrumental, at worst trivial?

One natural reply is that Jones is a language user, we can ask him why he *B*s and confirm the veracity of our explanation. But I take this reply to be question begging. The question is what *really* licenses the ascription of intentionality in one case and not the other? It cannot be just the fact that Jones can speak (or that we think he can speak) that makes his behavior explainable in the language of folk-psychology. Maybe we are never in a position to interrogate Jones. We may never hear Jones utter a sentence. If we assume that he is a language user, we are likely to assume that he has thoughts, concepts, beliefs, and realizes a variety of intentional mental states. The question is whether Jones really does have mental states. Are we merely speaking metaphorically when we ascribe intentional content to Kanzi and Jones? Are we merely speaking metaphorically in *all* cases of intentional ascription?

The concern generated by the ordinary use is rooted in the fact that *prima facie* intentional behavior is exhibited at all levels of biological organization and even in some inorganic systems. But which creatures and systems behave intentionally in the relevant

sense, the sense which would require positing psychological phenomena to explain? I assume that this question can only be answered after we answer the question of which creatures harbor intentional content. This is one construal of the problem of intentional ascription.

We need to focus our attention on Brentano's sense of intentionality: that of representational mental content. So for now, to abet confusion, I will simply stipulate that we are concerned primarily with intentionality in Brentano's sense. Also, in order to further focus the issue, intentional ascriptions are viable components of psychological explanation if and only if they capture intentional (representational) content.[2] That is, where there is no representational content, psychological explanation does not *really* apply.[3]

If the preceding bi-conditional sounds suspiciously tautologous, note that there are popular strategies for explaining behavior that do not rely on any account of mental content. Daniel Dennett, for one, has suggested that understanding behavior by appealing to psychological explanation is perfectly acceptable, regardless of whether intentional content is real.[4] In this sense, Dennett is instrumentalist about intentional mental states. Paul and Patricia Churchland have suggested that folk-psychology is simply false.[5] The theoretical postulates of folk-psychology do not refer. According to the Churchlands, what passes for psychology now will ultimately be eliminated, perhaps by a mature

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[2] Throughout I will use intentional content, representational content, psychological content, and mental content interchangeably.

[3] Of course, this is not to say that no forms of explanation apply. I mean only to indicate that no viable *psychological* explanation, no explanation of the kind traditionally forwarded in the idiom of folk-psychology, appealing to beliefs, desires, intentions, etc. My assumption here is that, while the vocabulary of folk-psychology might be subject to radical revisions, beliefs and desires, along with whatever mental and conceptual structures constitute them, really do exist and are causally efficacious.

[4] Dennett, Daniel. *The Intentional Stance*. Cambridge, MA: The MIT Press. 1987.

[5] Churchland, P.M. 'Eliminative Materialism and the Propositional Attitudes'. *Journal of Philosophy*. 78: 67-90. 1981.

neuroscience. Stephen Stich, too, has motivated eliminativism about the psychological attitudes, but on independent grounds.[6] Stich questions the notion that beliefs and desires really factor into explanations of *prima facie* intentional behavior. Evidence generated by cognitive psychology indicates that people frequently fail to act in accordance with what they claim to believe and desire, and frequently violate rules of elementary logic in arriving at beliefs about the world. Both eliminativist strategies have it that we need not concern ourselves with the questions of the reality and individuation of representational content. All three accounts are consistent with psychological explanations being useful, even indispensable, heuristic tools.

I mention Dennett, the Churchlands, and Stich only in passing here for several reasons: 1) to point out that there are several popular strategies to choose from in approaching the problem of intentional ascription, 2) to set the stage for my presentation of an alternative strategy, and 3) to emphasize that the ontological status of intentional content, along with the ontological status of the folk-psychological attitudes, is not a trivial point of contention. Since we are not precluded from giving psychological explanations even if the mentalistic vocabulary deployed by philosophers and psychologists does not refer, it is not a tautology to say that ascriptions of intentional content are viable components of psychological explanation only if they capture something real. If ascriptions of content using mentalistic predicates do refer, then there is an important distinction to be drawn between psychological explanations and pseudo-psychological explanations, where the latter are permitted by varieties of instrumentalism and eliminativism.

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[6] Stich, Stephen. *The Fragmentation of Reason.* Cambridge, MA: The MIT Press. 1990.

In a sense, the ontological point goes to the heart of the problem of intentional ascription. I maintain that the question of the reality and character of representational (intentional) content is separate from and takes priority over the question of understanding intentional behavior. For, explanations of the latter will include reference to relevant kinds of mental representations. That is, if intentionality is a psychological phenomenon, our ability to say anything interesting about which of the many species exhibiting purposive behavior warrant intentional ascription relies heavily on our ability to develop an adequate, if only programmatic theory of mental content. I will not offer a theory of content here. Instead, I'd like to suggest that positing degrees of intentionality is a promising strategy for distinguishing between intentional and non-intentional behavior.

In what follows, I assume that the question of which organisms and systems warrant intentional ascription is continuous with the question of which organisms and systems realize representational (intentional) mental states. Those creatures that realize representational mental states warrant intentional ascription; those that fail to realize representational mental states do not.

Much of the problem of intentional ascription, we'll see, is rooted in a pervasive equivocation of intentional content with *de dicto* ascriptions of folk-psychological attitudes. This is just to say that underwriting the problem is the belief that psychological explanations are somehow restricted to using the full-blown propositional attitude ascriptions deployed in belief-desire explanations of behavior. This belief partially motivates another philosophical strategy for answering the problem of intentional ascription. This strategy has it that mental content is real, causally efficacious, and more

or less describable in the language of folk-psychology. We can call this strategy *chauvinism*, and I'll explain why in more detail in due course. Since it is less prone to anti-realism, chauvinism is my primary concern, and an important counterpoint to the arguments I promote. Presently, let's turn our attention to give an account of chauvinism about intentional ascription. What is it, what motivates it, and what is wrong with it?

2. Chauvinism: A Potential Solution to the Problem of Intentional Ascription

The chauvinist solution to the problem of which organisms warrant intentional ascription is to draw a line across the phylogenetic continuum. On one side of the line we have the class of creatures to which intentional ascription applies. These creatures appear to harbor causally efficacious, contentful mental states. On the other side of the line we have the extension of creatures that do not warrant intentional ascription. It is implausible that these creatures realize contentful mental states, and so it is implausible that their behavior is ever explicable in anything resembling the language of folk-psychology. The important question for the chauvinist then becomes where to draw their line.

Those sympathetic to this approach tend to pre-empt the ascription problem before it appears to be substantive with an appeal to the logical machinery that underwrites language competence. Intentional ascriptions apply only to linguistic creatures, because only linguistic creatures use concepts to characterize features of their worlds. The propositional attitudes are complex intentional mental states largely constituted by the concepts a subject possesses and describable in terms of the relationships of the relevant concepts to others in a subject's conceptual scheme.

The chauvinist is quick to point out that if we do not include language among the criteria for judging whether a creature warrants intentional ascription, the problem appears to be either insurmountable or trivial. How can we hope, for instance, to characterize the mental states of a creature that cannot communicate its beliefs and desires even if it has them? At best, the chauvinist argues, we have pseudo-psychological explanations based on non-verbal behavior. It's fine to talk about the behavior of non-linguistic creatures as having intentional states, but they don't really have them. This is just a version of instrumentalism about intentionality. Moreover, if all we have to go on is non-verbal behavior, we find ourselves rapidly descending a slippery slope, ultimately forced to admit that oak trees and earthworms warrant intentional ascription. In short, the chauvinist argues, we do best to make language a prerequisite for intentionality, that way we side-step the problem of intentional ascription, at least where language is not present.[7]

Chauvinism presents itself as a plausible, even attractive, alternative to a strong behaviorism, instrumentalism, and other varieties of anti-realism about intentionality. We should simply conclude that *real* intentionality requires language competence. Of course earthworms and oak trees don't have intentional mental states. Psychological explanations, genuine psychological explanations, assume that the subject's concepts and intentional mental states bear appropriate (linguistic/logical) inferential relations to each other. If they do not, then psychological explanation fails. So, if we'd like to vindicate psychology as a science, we do best to admit that intentionality is only realized by linguistic creatures. Chauvinist arguments manifest an unwillingness to take seriously

[7] Of course, the issue of whether some artificially intelligent systems capable of interpreting and communicating in a language are intentional systems would apparently remain.

even the possibility of the attribution of intentionality to creatures incapable of expressing themselves verbally. We need to say more about why they think so.

2.1

We can say that one is a chauvinist about intentional ascription if one is arbitrarily *provincial* about intentional content. One is provincial if one maintains local or restricted interests; so, one is provincial about content if one restricts the application of mentalistic predicates. The list of typical mentalistic vocabulary would include, but is certainly not limited to, representations, concepts, beliefs and the other attitudes, and, of course, intentionality.

Of course, any realist account of intentional mental states and psychological attitudes will turn out to be provincial to a degree. After all, we do not want to trivialize mental states and we do not want to collapse into a variety of instrumentalism. The point I'll emphasize here is that we also need to beware of *how* we restrict intentionality, that is, of what sort of evidence we use as grounds for the criteria we establish for ascription. While a realist account will be provincial about mental content, chauvinism is provincial to a fault because the restrictions it entails for applying psychological predicates seem arbitrary and inadequate for the explanation of behavior across species. There is, after all, marked differences in behavioral flexibility, learning, and memory between gorillas and chameleons. An adequate theory of content should be able to rule out where and when causally efficacious psychological states obtain.

The brand of chauvinism I am concerned with draws the line at concept possession, which, as the claim goes, is evidenced by language competence. For our purposes, since

chauvinists are provincial about concepts, restricting their application to language users, they are provincial about intentional content. A general articulation of the chauvinist line can be summarized with the following argument:

Argument from the Priority of Concepts

P1. Concepts are the constituents of intentional mental states;

P2. All concept possessors are language users;

P3. No non-human animals are language users;

C1. No non-human animals are concept possessors.

C2. No non-human animals realize intentional mental states.

This argument, or arguments much like it, preclude intentional ascription in non-linguistic creatures. If one wants to be a realist about intentional content, for example, and if concepts are required for intentional content, then intentional ascriptions and the psychological states they purport to describe are not warranted where there are no concepts.[8]

I do not wish to challenge P1. The view I develop below is consistent with that claim. So, if we leave questions regarding the possibility of animal proto-languages aside, it is clear that P2 shoulders the work for the chauvinist argument. Since P2 is the load-bearing premise, we should dig in here. Why must concept possessors be language users?

3. An Inadequate Concept of 'Concept'

[8] This line has been argued forcefully by Davidson in several contexts. For one, see *Inquiries Into Truth and Interpretation*. Oxford: Oxford University Press. 1975. Unless otherwise noted, find all references to Davidson in the anthology *Problems of Rationality*. Oxford: Oxford University Press. 2004.

The chauvinist denies, on grounds of language competence, that concepts and higher cognitive functioning obtain in non-linguistic creatures. I will argue that it is because chauvinist strategies deploy a faulty notion of concepts that it ultimately fails. Moreover, problems generated by a similar faulty notion of concept spill over into other conversations with the effect of perpetuating problems for cognitive ethologists and philosophers who concern themselves with the possibility of intentionality in non-human animals.

Since 'concept possessors' constitutes the key category in question, we need a working definition of 'concept,' and one to which all parties would likely assent. To this end, consider concepts to be the constituents of content bearing, psychological structures. This rendering of concepts is intended to be more or less consistent with a broadly cognitivist construal. Concepts are the constituents some kinds of mental representations. For present purposes, concepts are a fundamental kind of representation, one which more complex representations may structure around. This is also consistent with the psychology literature, where concepts are deployed in the explanation of diverse psychological phenomena.

Note that this construal is also consistent with the chauvinist approach insofar as concepts are held to be fundamental constituents of the propositional attitudes. I assume that concepts bear content, in the most general sense, on both interpretations.[9] Here I am not so much concerned with theorizing about the structure of concepts *per se*. I assume that concepts have structure, and that they contribute to the structure of certain kinds of

[9] That is, I assume that if psychological structures are content bearing structures, then the constituents of psychological structures bear content. This may be controversial, but it is consistent with chauvinism, and certainly Davidson takes this to be the case.

complex mental representations.[10] If we accept this rough and ready notion of concepts, then if we can motivate concept attribution in non-linguistic creatures, we can motivate a realist approach to intentional ascription across species. This is not a novel strategy, although, I will argue, it is one that has been stymied by an inadequate notion of concepts.

3.1

It is popular among chauvinists to argue that if one has a concept, one necessarily has a belief. In fact, the argument goes, one must have the concept BELIEF in order to have any belief; this entails the further commitment that one understands that he might be wrong about what he believes. So, if one has a concept, any concept, one also has a concept of objective truth. At all events, having any concept entails having many concepts, each bearing actual and potential inferential relations to others in a holistic network. On this approach, concept possession entails the possession of full-blown propositional attitudes of the kind alluded to in folk-psychological explanation.[11] If concepts entail full-blown propositional attitudes, which seem to come together with the logical machinery underwriting language use, then language competence is a necessary condition for concept possession. The analogy between natural languages and the logical properties of propositional attitudes, after all, seems very strong. The upshot: "Speechless creatures lack the conceptual framework which supports the propositional

[10] I should also note that since I assume that concepts bear content, I assume that they have intentional properties. It is relatively uncontroversial that at least one kind of concept (i.e. those involved in language processing) exhibit the 'aboutness' that is the hallmark of intentionality. Herein, I mean to intimate that intentionality (at least to some degree) comes with being a concept; intentionality (at least to some degree) comes with being any kind of concept. More below.

[11] In effect, "There is no distinction to be made between having concepts and having propositional attitudes." Davidson: 137.

attitudes,"[12] and they lack anything resembling the intentional mental states that would warrant intentional ascription in explanations of their behavior.

It is worth pointing to the extremity of this articulation of chauvinism. Davidson, for his part, never asks, in earnest, whether or not some creatures have simpler, degraded, or different concepts. His question is whether animals have any concepts *at all*. This construal of the chauvinist notion of concepts reveals an *all-or-nothing* account of intentionality. For, without (at least) an appeal to concepts, any project positing intentional content in non-linguistic creatures seems potentially groundless.

3.2

Now that the stage has been set, I will argue for the attribution of intentionality to some non-linguistic creatures. I will argue from two conditional claims as follows: 1) if the concept kind splits appropriately (if there are non-linguistic concepts), then some concept kinds are attributable to some non-linguistic creatures, and 2) if some concept kinds are attributable to some non-linguistic creatures, then intentional ascriptions are attributable to some non-linguistic creatures. To further motivate my argument, I will look in some detail at one entrenched psychological phenomena: discrimination. Discrimination is frequently deployed ambiguously, to the advantage of chauvinism and to the detriment of cognitive ethology. I aim to show that a discrimination *versus* conceptualization dichotomy is at best confused, at worst false.

4. Splitting Concepts

[12] Davidson: 137.

Gualtiero Piccinini and Sam Scott have submitted arguments for the plausibility of concept splitting on the grounds of explanatory necessity.[13] Since my topic regards intentional ascription for the purposes of psychological explanation, we can follow Piccinini and Scott in sharpening our working notion of concepts to the "mental particulars posited as a specific part of the explanation for certain cognitive phenomena."[14] Again, note that this definition is consistent with chauvinism, where there is only one cognitive phenomenon to be explained, i.e. propositional thought itself. It is not lost on Piccinini and Scott that any claim to the effect that 'thought', itself, represents a singular natural kind sounds suspiciously folkish. However, if thoughts and their conceptual constituents were to be classified under a singular kind, the chauvinist strategy might gain substantive empirical support and might ultimately be vindicated. This is precisely the position I aim to challenge.

Concepts are typically invoked in explanations of a more or less uncontroversial set of psychological phenomena. Piccinini and Scott formulate their *desiderata* on concepts, which are typically posited in the explanation of psychological phenomena: 1) discrimination, 2) non-linguistic inference, 3) categorization, 4) word and sentence understanding, 5) linguistic inference, and 6) lexical combination.[15]

To motivate genuine concept splitting, we need to provide grounds to accept the claim that different kinds of mental representation, posited in the explanation of some subset of

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[13] Piccinini and Scott. 'Splitting Concepts'. Forthcoming in *Philosophy of Science*. (2006)
[14] Piccinini and Scott (2006)
[15] Piccinini and Scott (2006) The *desiderata* refer respectively to the following: 1) differential response to objects and properties with some important commonality, 2) inferences based on experience, i.e. the kind of learning exhibited when behavior is modified according to experience, for example birds that learn to avoid ingesting monarch butterflies after having been made ill by them, 3) the association of particular stimuli with particular response behaviors, 4) processing language in accordance with public norms, 5) inferring by word association or sentential form, 6) combining words and sentences creatively yet appropriately, in accordance with the public norms regulating their constituents.

the phenomena, structure around different kinds of concept. One way to do this is to show that the constituents of different kinds of mental representation are sustained and causally effected by different scientifically relevant clusters of properties and causal mechanisms with independent evolutionary histories.[16]

While Piccinini and Scott submit two arguments for genuine concept splitting, providing support on independent grounds, our primary concern here is only with what they call the argument from language. Motivating the argument from language is the growing body of evidence in both linguistics and psychology indicating that the mechanisms underwriting natural language competence and use differ qualitatively from those underwriting other higher cognitive functioning. The body of evidence is robust enough that psychologists and cognitive scientists hold that *desiderata* (1) to (3) involve mental representations that are qualitatively different than those involved in *desiderata* (4) to (6).

The occurrence of natural language is apparently specific to human beings. Moreover, the occurrence of language is increasingly considered to be genetically canalized and identifiable with particular regions of the cerebral cortex.[17] The latter point is presumably part of the explanation for why it is possible to independently disrupt language processing, without detriment to other 'higher' cognitive processes. On these grounds, it is at least plausible to posit that the concepts involved in language processing and linguistic representations split from those involved in one or more of the other *desiderata*. The argument from language runs as follows:

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[16] Piccinini and Scott (2006)

[17] Pinker, Steven. *The Language Instinct*. New York: W. Morrow and Co. 1994. Also, Gazzaniga, Michael S., R. B. Ivry, G. R. Mangun, and T. Y. Swaab. "Language and the Brain", in *Cognitive Neuroscience: The Biology of the Mind, Second Edition*. New York: W. Norton & Company. 351-99. 2002.

Argument from Language[18]

P1. If concepts are a singular natural kind, then there is one kind of mental representation that satisfies (1) through (6);

P2. Desiderata (1) to (3) require the postulation of one kind of mental representation;

P3. Desiderata (4) to (6) require the postulation of a different kind of mental representation;

P4. These two kinds of mental representation possess different clusters of scientifically relevant properties;

C1. There is no single kind of mental representation that satisfies desiderata (1) to (6).

C2. Concepts split into different natural kinds.

The argument from language is significant since it calls attention to what appears to be a qualitative difference between the kinds of concepts involved in explanations of *desiderata* (1) to (3) and (4) to (6). As such, the argument submits an immediate challenge to P2 in the argument from the priority of concepts: the claim that all concept possessors are language users. For, while the concepts invoked in explanations of (4) to (6) refer to psychological phenomena involved in language processing, those invoked in (1) to (3) may not, or need not. On these grounds, we have some justification for positing at least two different kinds of concepts.

Let the kind of concepts appealed to in explanations of *desiderata* (1) to (3) be called perceptual concepts, or P-concepts. Call the kind of concepts appealed to in explanations of *desiderata* (4) to (6) linguistic concepts, or L-concepts. The idea here, as Piccinini and Scott point out, is not that L-concepts are incapable of interacting and or combining in

[18] Piccinini and Scott (2006)

any way with P-concepts. It is just that L-concepts are qualitatively different than P-concepts; they have independent evolutionary histories, are enabled by different biological mechanisms, and they enable the realization of qualitatively different kinds of mental representations.

4.2

I will introduce one immediate objection here, and will discuss the issue at length in the following section. Chauvinists about intentional ascription are wont to simply deny that *desiderata* (1) through (3) require concepts. It's not clear, at least on the face of it, that discrimination, for instance, requires concepts. The objection must be taken seriously by anyone who wants to deploy conceptual representations in the explanation of the behavior of a non-linguistic creature.

Roughly, the objection goes as follows. Many non-linguistic creatures exhibit sophisticated discriminatory capacities. We see this even as 'low' on the phylogentic tree as the insect world. Wasps, for instance, seem perfectly capable of 'discriminating' crickets from, say, rocks. But certainly discrimination does not involve or entail concepts; otherwise wasps have concepts. We will have to say something about this, including a brief statement about the role of concepts in scientific explanation, without getting sidetracked into questions about the role of philosophy and other methodological issues.

First, whether or not philosophers sympathetic to the chauvinist strategy would allow that concepts are integral to *desiderata* (1) to (3), cognitive scientists and psychologists find them essential in adequately accounting for the diverse phenomena, each of which

apparently occur in diverse species to different degrees. But this is not to simply pooh-pooh the objection. Invoking different kinds of representations in the explanations of the psychological phenomena given in the *desiderata* on concepts is necessary to make sense of them, in particular for the purposes of induction and scientific explanation. In short, the important question is which theory provides the best explanation of the cognitive phenomena that typically appeal to concepts. Given the explanatory force of concepts, and given a plausible argument for concept splitting, chauvinism appears to be provincial to a fault. Or, granting that chauvinism may be well argued and tenable, we might consider restricting it to a theory of the concepts involved in the explanation of *desiderata* (4) to (6). That is, at best, chauvinism is a self-limiting strategy just because it recognizes only L-concepts.

One might conclude that chauvinists are prone to ask *loaded questions* when it comes to concept attribution for the purposes of intentional ascription in non-linguistic creatures. Consider this oft-quoted passage from Davidson:

> The dog, we say, knows that its master is home. But does it know that Mr. Smith (who is the master) is home? We have no real idea how to settle, or make sense of, these questions.[19]

Not many would be willing, in earnest, to ascribe a propositional attitude to the dog of the form: "Rover believes that Mr. Smith is home." For one thing, this would entail Rover's possession of the lexical concept 'home', and perhaps even his possession of the concepts of belief and objective truth (as Davidson would argue). The question also assumes that we would need to award some capacity for lexical combination to Rover, where the dog

[19] Davidson, Donald. 'Thought and Talk'. In *Inquiries Into Truth and Interpretation*. Oxford: Oxford University Press. 1975.

is able to combine concepts like ‘Mr. Smith’ with other lexical concepts like ‘Master’. That is the price of ascribing the belief that Mr. Smith is home to Rover without deferring to a watered-down instrumentalism. The point I wish to make is that Davidson’s question assumes that to have a concept is to have an L-concept, and to have all the cognitive capabilities that seem to go along with having L-concepts.

The question is loaded. Just because L-concepts are apparently unwarranted, it does not follow that any and all ascriptions of conceptual mental representations are unwarranted. It may be true that we cannot answer Davidson’s question, but only because it’s the wrong question to ask in the first place.

II. Two Kinds of Concept; Two Degrees of Intentionality

5. Wasps and Pigeons: Disambiguating the Phenomenon of ‘Discrimination’

I now turn my attention to *desideratum* (1): discrimination. I aim to criticize the intuition that there is a qualitative difference between conceiving of objects and properties and discriminating them. If this is a false distinction, we have further grounds for motivating concept attribution and intentional ascription in some non-linguistic creatures. Of course, it would also be interesting and useful to look at *desiderata* (2) and (3), non-linguistic inference and categorization. I’ve suggested that the mental representations theorized to explain all of (1) to (3) might structure around P-concepts instead of L-concepts. Unfortunately, it is beyond the scope of my project to give a satisfactory treatment of all three *desiderata*, showing how they might be related, etc.

Instead I'll focus on the phenomenon of discrimination, in order to draw out what I take to be the ambiguous and confused reference to this phenomenon by all parties.

5.1

If the discrimination/conceptualization dichotomy is fallacious, one might suspect that the problem, at root, might be merely terminological. Perhaps. But if so, it's an important terminological problem. At present, there's an inconsistent triad where either (1) some kind of concept is involved in discrimination, or (2) none are involved, or (3) there are two different phenomena (only one of which is a psychological phenomenon) classed under the same word. Clearly (1) and (2) are not compatible. It seems we're left with (3), and with the terminological issue of which phenomenon represents discrimination proper. After all, we do not want to say that Mike 'discriminates' stop signs and that army ants 'discriminate' army ant larvae without making some qualifications and distinctions. We need to be clear about how we are using the term, about what sort of phenomenon we are referring to when we use the term. In the end, we do best to reserve 'discrimination' for reference to the psychological phenomenon described in *desideratum* (1). As such, explaining a true discriminatory capacity in an organism requires an appeal to mental representations and, at least, P-concepts. If the concept kind splits, this opens important doors for the purposes of intentional explanations of behavior.

Why stipulate that 'discrimination' is a psychological phenomenon? Well, we might first ask the following question: what would discrimination without concepts amount to? I suspect that what passes for 'discrimination' in many non-linguistic creatures is not

properly referred to as discrimination at all, and, indeed, many who deploy the term do not intend to be referring to our *desideratum* (1). Or, if they do so intend, they would submit that (1) is a strictly behavioral phenomenon that does not require an appeal to concepts or mental representations. If this is the case, we simply need to police our usage of 'discrimination'. I suppose we could opt to subscribe to (2) from the triad above. We should say, for instance, that wasps discriminate crickets. But we should *not* say that Tiger Woods 'discriminates' golf balls. In the former case, the explanatory story of the wasp's behavior will presumably be told in the language of chemistry and molecular physics. It is likely that no concepts obtain in the wasp, not even P-concepts, and so intentional ascription/explanation is unwarranted. In the latter case, we have all kinds of L-concepts to appeal to in explaining Woods' behavior. It is likely that Woods has full-blown propositional attitudes that take golf balls as a substantial part of their content. In other words, Woods represents golf balls, but the wasp likely does not represent crickets. I think there is certainly an important distinction to be drawn here, but I also think that appealing to a non-intentional, non-conceptual capacity to 'discriminate' is a bad way to characterize the distinction. More below.

I emphasize here what appears to be a tacit (problematic) commitment to envisaging concepts as L-concepts, full stop. This commitment reinforces the belief that concepts constitute a singular kind and perpetuates what I take to be the false distinction between discriminating objects in the environment and realizing conceptual mental representations of objects in the environment. Here is Davidson wielding the confused notion of 'discrimination' I refer to:

> "It is not easy to say what must be added to the power of discrimination to turn it into command of a concept."[20]

What is important to emphasize is that the commitment to concepts as something very like L-concepts is not limited to chauvinist strategies. For instance, here is an articulation of the dichotomy from Colin Allen and Marc Hauser:

> The distinction to be made is between recognizing an *X*, and recognizing something *as* an *X* or recognizing it to be an **X**. The first of these is thought of as an extensional characterization of a discriminatory ability. The organism said to have the ability has some way of sorting things into the classes specified (X and non-X)….The second says something about the organism's system of internal representation. To have a concept of X where the specification of X is not exhausted by a perceptual characterization, it is not enough just to have the ability to discriminate X's from non-X's. One must have a representation of X that abstracts away from the perceptual features that enable one to identify X's.[21]

Elsewhere, according to Stephan Achim, the essence of the dichotomy is this:

> …the decisive question is whether other plausible categories of the Intentional exist which can be located between the strong notion of having beliefs and concepts in Davidson's sense, on the one hand, and the weak notion of being merely able to make some discriminations, on the other.[22]

These authors defer to the faulty ideal of a singular concept kind, with the effect of deploying 'discrimination' ambiguously. In effect, we only confuse the issue of the explanatory role of discrimination, as a behavioral/psychological phenomenon, if we insist that there is a 'weak notion' of 'discrimination', one that does not involve concepts.

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[20] Davidson: 9.
[21] Allen, C. and Marc D. Hauser. 'Concept Attribution in Nonhuman Animals: Theoretical and Methodological Problems in Ascribing Complex Mental Processes'. *Philosophy of Science*, Vol. 58, No. 2: 221-240. 1991.
[22] Achim, Stephan. 'Are Animals Capable of Concepts?' *Erkenntnis*, Vol. 51: 79-92. 1999.

To so insist is to be guilty of speaking metaphorically about the behavior of some organisms, i.e. sunflowers, earthworms, etc.

Note how closely the language of Achim, Allen, and Hauser mirrors the chauvinist account of what it is to have a concept. Concepts afford something to a non-intentional capacity for 'discrimination', namely, the ability to sort or class an object or property as an instantiation of some broader category of object or property. It is characteristic of concepts, across disciplines concerned with them, that they are mental representations or that they constitute mental representations that are somehow independently describable from the physical, sensory/informational input that might cause them or to which they might refer. For our purposes, the notable point is that representations of this kind should enable a creature's ability to modify behavior in an important way. In addition to responding differentially to stimuli in the local environment (a capacity attributable even to thermostats, sunflowers, and wasps), the capacity affords the ability to respond to internal representations.

Jerry Fodor called the referents of such internal representations *non-nomic* properties of an object or state of affairs, since they apparently do not bear the kind of lawful relations to the external environment typical of reflexive, stimulus-response relations.[23] Fodorian non-nomic properties are, in effect, properties conceived-of or attributed to objects by a creature in possession of something very like L-concepts. This is one way of avoiding a slippery slope regarding intentional ascription: paramecia, sunflowers, and thermostats do not warrant the ascription of intentionality because they are incapable of responding differentially to non-nomic properties; they simply do not realize mental

[23]Fodor, Jerry. 'Why Paramecia Don't Have Mental Representations'. *Midwest Studies in Philosophy*, Vol. 10, 3-23. 1986. For cases of non-nomic properties, Fodor submits the following examples: being a left shoe, being furrier than a breadbox, being a crumpled-shirt, etc.

representations that abstract away from stimuli. Thus Fodor provides a neat answer to the problem of intentional ascription. Any creature that exhibits what he calls property *P*, the ability to respond differentially to non-nomic properties (i.e. internal mental/conceptual representations), warrants intentional ascription.

Unfortunately, as Fodor more or less admits, this solution is of limited use. While it apparently dictates that human beings warrant intentional ascription, and that paramecia and sunflowers do not, it fails to indicate whether cats, vervet monkeys, bonobos, warrant intentional ascription. We have, again, a plausible realism about intentionality, but we are left wondering about the behavior of huge percentage of earthly species. On a strong reading Fodor comes very close to advocating a naturalistic variety of chauvinism:

> [A] verbal organism has resources for communicating, in considerable detail, not only what it sees, but also what it *sees as*. Roughly, the predicates of a natural language are sliced thin enough to correspond one-to-one with the properties to which we can respond selectively…[24] (my emphasis)

In short, it seems to be extremely difficult to characterize non-nomic properties without recourse to lexical concepts. Somehow naming seems fundamental, and we come very close again to equivocating between L-concepts and concepts *tout court*.

5.2

One particularly salient repercussion of making L-concepts necessary for representation and intentionality is a pervasive acceptance of the view that there is an important qualitative distinction between classificatory capabilities and discriminatory

[24] Fodor (1986)

capabilities. Whereas language users seem to deploy mental representations in order to classify objects, it is not clear that any non-linguistic creatures do. It's not clear, in other words, that Rover or the wasp ever entertain any mental representations that enable classification or categorization such as those we take to be enabled by the possession of L-concepts. In so many words: the ability to 'discriminate' objects in the local environment does not entail the obtaining or the application of a concept. Perhaps we should accept (2) in our triad on discrimination?

After all, if we define discrimination in terms a creature's differential response to external sensory input in the local environment, and if we posit that the mental representations involved in *desiderata* (1) to (3) structure around concepts, doesn't that entail that sunflowers, paramecia, and thermometers have concepts? Have we trivialized intentionality by awarding thermometers mental representations, thus making them legitimate candidates for intentional ascription? Such questions have underwritten chauvinism, instrumentalism, and eliminativism, and the answers, to a certain extent, depend on our usage of 'discrimination'.

If we want to make concepts integral to discrimination while motivating concept attribution in some non-linguistic creatures, it will help to combine genuine concept splitting with some behavioral evidence. What we need is for the appeal to concepts and mental representations in non-linguistic creatures to provide either a better explanation of specific behaviors or at least one that is presumably consistent with physical explanation. I maintain, again, that if we want to be realists about psychological states in general, and we accept concept splitting, we must accept on the grounds of explanatory necessity that some non-linguistic creatures have, at least, P-concepts. Any attempt, it seems, to

dismiss some instances of complex animal behavior as mere 'discrimination' without mental representation comes across as hand waving in the face of potentially better explanation. In the following sub-section, we'll look in a little more detail at a particular case in which the discrimination *versus* conceptualization dichotomy is salient.

5.3

In 1976 Herrnstein, Loveland, and Cable published a study entitled "Natural Concepts in Pigeons".[25] The experiments purported to provide empirical support for the hypothesis that pigeons have concepts for certain objects in their local environments. In the study, pigeons were shown pictures of trees, parts of trees, and pictures that had nothing to do with trees. The pigeons demonstrated that they were capable of differentially pecking at a feeder key that stood in for a 'tree' category, in accord with pictures with which they were presented.

Allen and Hauser prudently point out that the study does not go very far toward confirming the hypothesis that pigeons have the concept 'tree', 'tree-branch', or any other.

> To say that the pigeons sort pictures into categories of tree…is…a considerably less specific claim about the internal representations involved than the claim that pigeons have concepts of those things…We are supposing that an explanation of this ability will attribute some kind of internal representation to guide the classification. But is this enough to allow us to say that the pigeons possess the corresponding concepts?[26]

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[25] Herrnstein, R.J., D. H. Loveland and C. Cable. 'Natural Concepts in Pigeons', *Journal of Experimental Psychology, Animal Behavior Processes* Vol. 2, 285-302. 1976.
[26] Allen and Hauser (1991)

It seems to me that both the study and the prudent remarks of Allen and Hauser beg the question of what it is for a creature to discriminate properties in its environment. Are the observations enough to determine that some appeal to concepts (of some kind) is warranted in an explanation of the pigeons' behavior? That might depend on whether we are guilty of equivocating between P-concepts and L-concepts. If we are, then we are likely subscribing to the theory that concepts constitute a singular natural kind.

Notice that Herrnstein *et al*, along with Allen and Hauser, assume that there are probably internal representations involved in the pigeons' discriminatory behavior. Both parties deploy a broad sense of representation, assuming a distinction between conceptual and non-conceptual representations. I am primarily interested in the former, and admit that I cannot hope to adequately integrating the latter into the conversation here without straying too far off topic.

The question of non-conceptual content notwithstanding, the point I want to emphasize here is that the question of whether pigeons possess concepts that correspond to the lexicalized categories in question (tree, tree-branch, etc.) is inappropriately framed. If we accept that concepts split in the way suggested, the question changes from 'do pigeons have concepts?' to 'do pigeons have P-concepts?' The latter is a significantly more focused question that might help an empirical investigation to avoid some of the problems generated by an ambiguous deployment of some of the relevant terms: concept, representation, discrimination, etc. Since pigeons apparently do not have L-concepts, it should be determined if the evidence generated by the experiments is sufficient to determine if they have P-concepts. Is the behavior in question *best explained* by an appeal to mental representations that structure around the kind of concepts required for

discrimination, non-linguistic inference, and categorization? *If not, then not even discrimination is a legitimate part of an explanation of pigeon sorting behavior*. For, if discrimination is a genuine psychological phenomenon, it implies intentionality. This point does not rest on any assumptions about how we should define behavior. It's just that the best explanations of some behavior will be mechanistic while others will be at least partially intentional.

However, if we choose to subscribe to an account of discrimination which disregards its association with concepts we have another problem: it is just question-begging (at least in some cases; I have examples below) to explain a behavior by appealing to some non-conceptual capacity (even one that involves internal representations) to pick out certain features of the environment. One might motivate this argument by stipulating that only L-concepts are properly called concepts. But, again, we have reason, independent of behavioral evidence, to deny this. And even here, we might posit that internal representations, even non-conceptual ones, should they exist, have intentional properties (i.e. they are 'about' things). I have a hard time making sense of the idea of an internal representation that it is not about anything. In any case, the problem of intentional ascription would still stand.

For our purposes, if the pigeons do not realize concepts of any kind, then, barring some plausible theory of non-conceptual, intentional content, no mental content can be ascribed when a pigeon executes some 'sorting' procedure. In this case, we should assume that an adequate explanation of the pigeon-sorting behavior will eventually be given in physico-chemical terms only, without reference to psychological phenomena.

Here psychological explanations deploying an intentional vocabulary would be merely metaphorical.

We might be in agreement with chauvinists at least to the extent that without an appeal to concepts of any kind, the ascription of internal representations may not be warranted in pigeons. If the distinction between non-conceptual representation and conceptual representation is, as Allen and Hauser indicate, the difference between recognizing an *X* and recognizing something *as* an *X*, we may have another false dichotomy on our hands. However, if concepts split along the lines suggested by Piccinini and Scott's argument from language, then we can attribute conceptual (intentional) content according to what kinds of representation a creature is capable of, and according what concepts are required to explain those varieties of representation. On this construal, we need not commit on the question of non-conceptual representations. The discrimination *versus* conceptualization dichotomy is fallacious because internal representations of the relevant kind require concepts (of different kinds, magnitude, and complexity).

5.4

In another work, Allen has proposed a set of criteria for the attribution of concepts to non-linguistic creatures. His criteria are particularly salient because they are cast in terms of 'discriminatory' behavior. If we continue to bear in mind the ambiguity inherent in uses of discrimination in explanation, Allen's criteria for concept attribution are helpful here. They read as follows. A creature warrants the attribution of concepts if 1) it systematically discriminates between *x*s and non-*x*s, 2) it can recognize its own

discriminatory errors, and 3) it learns to *better* discriminate between *x*s and non-*x*s as a result of its ability to recognize its own discriminatory errors.[27]

While the second and third criteria imply discrimination in the strong, unambiguous sense of the word I endeavored to stipulate above, I take the first criterion to be problematic, mistakenly deploying 'discrimination' to refer to a non-representational behavioral tendency (regularity of response to particular classes of stimuli) that does not imply discrimination in the strong sense. Again, this is a terminological issue, but one that causes sufficient confusion that it is worth mentioning. For an animal to exhibit a habitual or regular behavior in relation to some class of objects or properties in its environment is not sufficient for the proper attribution of discrimination. Discrimination is a *psychological* phenomenon that requires the possession of at least one kind of concept. We would do well to re-phrase Allen's first criterion to the exclusion of reference to discrimination: 1) a creature must exhibit regularity of response to particular classes of stimuli. Couple this with the other two criteria and I think we are getting somewhere.

To say that a wasp, for instance, 'discriminates' crickets because it systematically picks them out and drags them into its nesting ground is far too weak a sense of discrimination to use in an explanation of its behavior. Here 'discrimination' is simply a placeholder for some chemico-physical story situating the wasp in response to some stimuli in its local environment. The story will be mechanistic to the exclusion of psychological phenomena, for wasps show a lack of plasticity to the extent that they consistently fail to meet the second and third criteria. That is, with regard to their cricket-

[27] Allen, Colin. "Animal Concepts Revisited: The Use of Self-Monitoring as an Empirical Approach". *Erkenntnis*. Vol. 51, 33-40. 1999.

hording-behavior, wasps utterly fail to adapt to changes in their local environment.[28] There is a lack of evidence to suggest that wasps exert any measure of agency over this behavior; the kind of agency that would make an appeal to internal mental representations warranted. In Achim's terms, the wasps apparently have "no influence on the mechanisms that govern their behavior."[29] It precisely that influence on behavior, or at least the appearance of that influence, that motivates psychological explanation in general. This is where controlled, experimental data becomes particularly useful. For, while in the wild wasps behave with what *appears* to be impressive capacities for memory and impressively efficient rituals for reproduction; they fail to behave in experimental settings in any way that would imply the capacity for generalization over categories, non-linguistic inference, or even the ability to discriminate in the strong sense for which I've advocated.

Now, if a creature *sharpens* its capacity to pick out important objects and stimuli, especially if the sharpening is apparently based on errors and occurs even in the face of changes in the environment, it seems increasingly likely that the kind of mental representations that structure around the concepts needed to explain Piccinini and Scott's desiderata (1) to (3), so at least P-concepts, obtain in the creature. Such a creature would warrant intentional ascription.

6. Degrees of Intentionality

So far I have argued that concept attribution is sometimes warranted in the absence of linguistic competence (L-concepts), so real intentional ascription is sometimes warranted

[28] Achim (1999)
[29] Achim (1999)

in the absence of L-concepts, which signal language competence. I will finally say something about motivating degrees of intentionality, how it might be related to concept splitting, and why it is an attractive alternative to chauvinism. For, to say that intentionality, *tout court*, is applicable to creatures in possession of concepts is not to say that intentionality admits of degrees.

Vervet monkeys in East Africa[30] have proved an interesting case for our purposes, since they appear to meet Allen's criteria for concept attribution. If concept attribution is warranted, I propose that vervets do realize intentional states, but that vervet intentionality is not as robust or rich as the intentionality that is enabled by the possession of L-concepts. At all events, vervets apparently warrant intentional ascription despite their apparent linguistic incompetence.

6.1

In their study of vervets, Seyfarth, Cheney, and Marler identified at least four distinct alarm calls deployed by the monkeys in response to specific local predators or potential threats. Vervets sound different alarms for leopards, eagles, snakes, and unfamiliar human beings that encroach on their territory. The different alarm calls evince different appropriate strategies of evasion in individual monkeys. For instance, when the snake alarm is sounded, the monkeys stand upright, visually scan the area for a snake, and, if one is located, attack it as a group. By contrast, vervets respond to the leopard alarm by climbing nearby trees. Leopards stalk vervets on the ground, typically hiding in the undergrowth and pouncing. Vervet communication and cooperation are impressive, but

[30] Seyfarth, R. M., D. L. Cheney and P. Marler. 'Vervet Monkey Alarm Calls: Semantic Communication in a Free-ranging Primate'. *Animal Behaviour* Vol. 28: 1070-1094. 1980.

are they enough to warrant concept attribution? Intentional ascription? Further considerations support affirmative answers to these questions.

Vervets learn, by experience, to sharpen the accuracy of their alarm calls. Inexperienced vervets are likely to sound the eagle alarm when presented with non-predatory species of birds. This indicates that they are not pre-disposed to react to eagle-stimuli. It might be the case that they are predisposed to act to eagle-like-stimuli. If this is the case, it could support the conclusion that vervets have some kind of eagle concept, perhaps something like an un-lexicalized prototype or exemplar. I won't argue that line here, but I will point out that this behavior also provides some evidence that some vervets meet Allen's second and third criteria: vervets are capable of sharpening their capacity to pick out important objects in their environment, apparently on the basis of experience and reinforcement. Elder vervets alternately chastise and reinforce the false and accurate usage of alarm calls respectively.[31] This, of course, is another suggest behavior, but I won't discuss it any further here.

While the behavior described is impressive and suggestive, the question of whether vervets are responding differentially to mental representations remains. Are conceptual mental representations of birds, predatory and non-predatory, involved in vervet learning? It is uncontroversial that many animal species 'learn', in some sense of the word, but we need to establish the plausibility that the sharpening in vervet monkey behavior indicates that they modify behavior (at least in some cases) in response to conceptual mental representations. Given the evidence so far presented, it's not obvious that the best explanation of their behavior involves the attribution of concepts or

[31] Allen, C. and M. Bekoff. *Species of Mind. The Philosophy and Biology of Cognitive Ethology*. MIT Press: Cambridge, MA. 1997.

intentionality at all. We might, for example, aim to explain vervet escape behavior by giving some complex story of a conditioning process that does not involve conceptual representations of any kind. Perhaps there is a mechanistic story that does not appeal to psychological phenomena.

Perhaps, but consider that there are observed cases where mature vervets apparently give false alarm calls at strategic times.[32] This practice has been exhibited, for example, during territory disputes with other monkey troops. In one documented case, a distressed vervet climbed a tree and sounded the leopard-alarm during a melee over territory boundaries. The fighting promptly dissolved as monkeys dispersed in response to the call. This might not be as interesting if it were not known how adept vervets are at identifying predators and warning each other; nor would it be so if it were not observed that the monkey in question was a member of the troop that was losing ground.

In fact, mature vervets are likely to refrain from acting on the alarm calls of individual monkeys who have repeatedly sounded false alarms. Achim suggests that, in light of this latter behavior, it is likely that mature vervets are capable of comparing "conspecific's utterances with reality to prove aptness. Thus, vervet monkeys seem to be capable to distinguish between true and false alarm calls."[33] In effect, discriminating (in the appropriate sense) between probably true and probably false alarm calls provides strong evidence that vervet monkeys are capable of making judgments of a sort. This, in turn, would indicate that they are capable of modifying their behavior according to conceptual mental representations as opposed to blindly responding to stimuli to which they are pre-disposed either from birth or from conditioning. In vervets at least, there is evidence of a

[32] Seyfarth, Cheney, and Marler (1980)
[33] Achim (1999)

rudimentary inferential process. There is the further consideration, as well, that the level of sophistication of the behavior in question makes it more and more difficult to explain in non-intentional terms. In explaining vervet false alarm calls, to say nothing of the 'monkey-who-cried-wolf' effect, non-intentional explanations may not have the theoretical resources to satisfy us. I don't mean to beg the question of whether a vervet might realize an intentional state. I only mean to suggest that if we aim to give the *best* explanation, we may need to appeal to conceptual representations and intentional mental states. Ample empirical data, from both natural and laboratory settings are, of course, a necessity for determining the case.

6.2

A primary goal of mine here is to suggest that concept splitting might diffuse some of the typical concerns that have gone hand in hand with attributing conceptual representations to non-linguistic creatures. Of course, difficult questions abound. Do vervets regularly give alarm calls because they *believe*, in something like the folk-sense of believe, that particular kinds of predators are nearby? Do vervets react or ignore alarm calls on the basis of whether or not they *believe* them to be true or false? Can we hope to answer these and related questions meaningfully without falling down a slippery slope that would have us ascribing intentional states to sunflowers and compasses, and without resorting to either an instrumentalist or provincial attitude about concepts and intentionality? These questions are clearly underwritten by concerns generated by the language of folk-psychology. What might it be for a vervet monkey to come to a concept? A belief? Unlike chauvinists, I am more optimistic that we can make sense of

such questions. But I think we can only be so optimistic if we couple concept splitting with degrees of intentionality.

We should acknowledge, first off, that if we want to answer yes to the question of whether vervets realize conceptual mental content to some degree, we currently lack the vocabulary to give definite descriptions of that content. This, of course, is *the* major concern of chauvinists, and it also underwrites anti-realism about intentionality as well. But it needn't be too great a concern. For, if we accept concept splitting, and we have good evidence[34], there is no reason to assume that the intentionality of mental states in non-linguistic creatures has propositional structure. This is just to say that, since they probably do not have L-concepts, folkish propositional attitude ascriptions will not suffice to capture the content of a vervet monkey's mental state. This, too, is not a major cause for concern. There are independent reasons to deny that propositional attitude

[34] Piccinini and Scott (2006). The authors offer a second compelling argument for concept splitting. In addition to the *Argument from Language*, they submit the *Argument from Typicality Effects*. It certainly is attractive to simply restrict the term 'concept' to the psychological structures that are apparently involved in language processing. This is one way to describe the chauvinist program. But typicality effects like those documented by Rosch and Mervis (1973 and 1975) have indicated that in addition to using concepts to categorize the world, people frequently make judgments regarding how typical an observed instance is of a category. Judging typicality is common for many "naturally occurring, lexicalized, referring object concepts (FRUIT, WEAPON, FISH, FURNITURE, etc.)…" However, it is significant that typicality effects apparently do not generalize to all other categories. For example, there are categories of *ad hoc* concepts "such as (THINGS TO DO FOR WEEKEND ENTERTAINMENT)….and a class of well-defined logical and mathematical concepts (e.g. ODD NUMBER)…" that seem *not* to structure around similarity within a category. So, we might accept concept splitting on the independent grounds that there might be (at least) one kind of similarity-based concepts and (at least) one kind of non-similarity based concepts. Interestingly, Piccinini and Scott note that "It is suggestive…that the kinds of concept for which it is difficult to demonstrate or intuitively odd to suppose a similarity-based structure are just the kinds of concept that we might expect non-linguistic creatures to lack: abstract concepts, which require the ability to reason about the non-concrete; ad hoc concepts, which are highly compositional in nature; and…logical and mathematical concepts, which are almost certainly unavailable to non-linguistic creatures." It is also suggestive that some apparently non-similarity based concepts, especially mathematical and logical concepts, appear to structure as definitions. These kinds of concepts lend themselves to the chauvinist account of concepts broadly construed, and, as such, might be characterized as L-concepts.

ascriptions, typically *de dicto* ascriptions of content, capture everything there is to capture about intentional content, even in language users.[35]

What we can say is that, if we are content to use Allen's criteria, it is very likely that vervet monkeys have P-concepts. For they are apparently capable of modifying their behavior in response to mental representations abstracted from stimuli in their local environments. They appear to engage in rudimentary (non-linguistic) inferential processes and appear to be capable of categorizing some objects and states of affairs. Moreover, they discriminate, in a very strong sense, between a variety of different predator-types, and between true and false alarm calls given by their conspecifics.

Conclusion

So far, I have submitted two arguments promoting the ascription of intentionality to some non-linguistic creatures. First, I advocated genuine concept splitting with an eye to motivate concept attribution in some non-linguistic species.

Argument from Concept Splitting

P1. Desiderata (1) to (3) require (at least) one kind of mental representation (those structuring around P-concepts);

P2. Desiderata (4) to (6) require (at least) one different kind of mental representation (those structuring around L-concepts);

C1. There is no single kind of concept that satisfies desiderata (1) to (6).

C2. Explanations of behavior that appeal (appropriately) to desiderata (1) to (3) imply an appeal to (at least) one kind of concept.

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[35] See: Loar, Brian. 'Social and Psychological Content', in *Thought and Content*, Robert Grimm and Daniel Merrill (eds.), University of Arizona Press, 99-110. 1988. And: Boghossian, Paul. 'The Transparency of Mental Content'. *Nous-Supplement: Philosophical Perspectives*. Vol. 8. 1994.

Genuine concept splitting provides general support for concept attribution where language is not present. We should believe that L-concepts are proprietary, differing in kind from (at least) P-concepts for the following reasons. It has been well documented that it is possible to disrupt language processing and associated tasks without disrupting other cognitive functioning. This fact is particularly salient. For, a human subject may lose the ability to effectively interpret and express one self in a natural language (due, for example, to brain trauma or lesions), while apparently retaining some or all of the cognitive abilities associated with *desiderata* (1) to (3). This suggests that the kinds of mental representations involved in *desiderata* (1) to (3) structure around a different kind of concepts. Also, language use and processing apparently requires species specific genetic and phenotypic traits. While it seems obvious that most or perhaps all non-human animals are incapable of word and sentence understanding, linguistic inference, and lexical combination, it is far from obvious that they are incapable of discrimination (in the relevant sense), non-linguistic inference, and categorization.

Secondly, I submitted the following argument, which attends to a terminological issue with regard to the phenomenon of 'discrimination'.

Argument from Discrimination[36]

P1. (By definition) Discrimination (properly attributed) in non-linguistic creatures requires an appeal to mental representations that structure around (at least) P-concepts;

P2. (By definition) P-concepts have intentional properties;

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[36] I have purposefully limited my inquiry to *desideratum* (1), and acknowledge that it is a consequence of the argument that if a creature is truly capable of discrimination, it is likewise capable of non-linguistic inference and categorization. If an organism has P-concepts, it is likely that these three psychological phenomena can be attributed to different degrees depending on the organism.

C1. Non-linguistic creatures that have P-concepts warrant intentional ascription.

Why should we accept P1? Why grant that any non-linguistic creatures discriminate in the sense stipulated? I've suggested that we stipulate that discrimination implies concepts on the grounds that 1) discrimination is already widely held to be a *psychological* phenomenon and 2) appeals to discrimination in the literature across disciplines are ambiguous. We want to avoid appeals to discrimination in multiple, incompatible contexts. For another example, we don't want to say that Jones 'discriminates' the outline of a palm tree in the distance as he slowly dehydrates in the desert *and* that the coral 'discriminates' the potentially threatening member of the same species growing millimeters away when it commences with its offensive. Yet, these apparently incompatible cases of use are common in the literature across disciplines. In short, we need to either take discrimination for a psychological phenomenon or for a non-mental ability. The argument from discrimination advocates for an unambiguous sense of discrimination in order to avoid equivocating discrimination as a psychological phenomenon and instances of non-intentional response behavior.

I assume P2. That is, anything properly called a concept or a conceptual representation must be 'about' something in the representational, intentional sense. Concepts, of all kinds, are psychological/representational structures and have psychological/representational content.

Of course, one might question whether I haven't simply recast the problem I began with, without offering even a strategy for approaching the problem as I promised. After all, hasn't the question simply changed from 'which creatures warrant intentional ascription?' to 'which creatures warrant the ascription of P-concepts?' Perhaps, but I

maintain that it is an open empirical question which creatures warrant the ascription of P-concepts. I promised only a theoretical approach to the problem of intentional ascription. On this approach, granting concept splitting, we leave the door open for the ascription of concepts in non-linguistic creatures, and so for intentional ascription in non-linguistic creatures. I have tried to plausibly distinguish between one kind of concept involved in linguistic representations on the one hand and another kind involved in non-linguistic (yet intentional) representations on the other. In doing so, we have some interesting possibilities regarding the ascription of intentionality where language is not present. I also assume that discovering the character of concepts of different kinds is as much a matter for empirical inquiry as it is for *a priori* analyses. In fact, I accept that there may turn out to be *more* than two kinds of concept, in which case there may be more than two degrees of intentionality.

This is an inherently interdisciplinary inquiry, and ongoing, robustly interdisciplinary investigation may reveal a set of genotypic and phenotypic traits that constitute a likely minimal set of criteria for the ascription of any kind of concepts. We could draw a line of sorts here (although it need not be a definite line). Creatures meeting the minimum genotypic and phenotypic criteria would warrant intentional ascription. We would then want develop a way of describing the intentionality of, for instance, P-concepts and the representations which structure around them.

Underwriting the arguments I've submitted is the assumption that concepts are the constituents of some kinds of mental representation, and that all kinds of conceptual mental representation derive their intentional properties from their constituent parts. Where there are concepts, no matter the kind of concept, there is a relation exhibiting

intentional ‘aboutness’, and where such a relation obtains, intentional ascription is warranted.

Finally, if the concept kind splits in a way resembling the way Piccinini and Scott have proposed, then we might further diffuse traditional worries about ascribing concepts to non-linguistic creatures by proposing that intentionality admits of (at least two) degrees. Roughly, the degree of intentionality would be a function of the concept kind and kind of mental representation in question. L-concepts, as the players in such psychological phenomena as word and sentence comprehension, linguistic inference, and lexical combination, afford an exceptionally robust and rich degree of intentionality. This is the intentionality of folk-psychology. We can certainly accept that linguistic competence affords a capacity to harbor and articulate beliefs and desires that either fail to obtain or go inexpressible in non-linguistic creatures. L-concepts bear innumerable logical relations to each other, can play a role in linguistic inference, and are subject to an undetermined degree of lexical combination. But we need not, given these considerations, subscribe to chauvinism about intentionality. Chauvinism, recall, is a provincial strategy insofar as it limits its purview to the intentionality afforded by L-concepts. As such, it presents us with a theory of L-concepts. It may be that chauvinism has much to contribute to our understanding of L-concepts, but it is not obvious that it presents a viable theory of intentionality in general.

By contrast, P-concepts afford a substantially truncated degree of intentionality. On this view, vervet monkeys, among many other non-linguistic species with sophisticated nervous systems, do realize intentional mental states. That is, their experience of the world is such that they harbor representations, structuring around P-concepts, that are

about things in their environment. The character and structure of those concepts and the representations they constitute is subject to further empirical and philosophical research.

In closing, I submit the argument for degrees of intentionality:

Argument for Degrees of Intentionality

P1. Discrimination, inferences based on experience, and the arbitrary association of stimuli with appropriate response behavior require mental representations that structure around P-concepts;

P2. Word and sentence comprehension, linguistic inference, and lexical combination require mental representations that structure around L-concepts (possibly in addition to P-concepts);

P3. All concepts have intentional properties;

P4. The kind of mental representations structuring around L-concepts are more highly compositional and bear a higher (potentially unlimited) number of inferential relations than those structuring around P-concepts;

C. Intentionality admits of (at least) two degrees of psychological complexity.

Assuming that enough evidence has been provided to support P1 and P2 above, and assuming that P3 is uncontroversial, why should we go all-in, accepting P4 and concluding degrees of intentionality? The idea that L-concepts are more complex, at least in the two respects listed, should be a consequence of concept splitting as described. It seems clear, at least intuitively, that the intentionality of some psychological states realized by language users is substantially richer than anything non-human species are capable of. This much seems obvious from the sheer capacity for cognitive manipulation and behavioral flexibility that seems to go with language mastery.[37]

[37] Another attractive feature of concept splitting is that it enables us to be holists about L-concepts while reserving judgment on the properties of P-concepts. We might very well go ahead and endorse some of the considerations put forth by chauvinists about L-concepts. But we need not with respect to P-concepts.

Finally, one way to articulate the question behind the problem of intentional ascription is this: is intentionality an all-or-nothing phenomenon? Many approaches to the problem have answered yes to this question. If so, it would seem difficult to argue for intentionality in other species without trivializing our folk-psychological notions. If this is unacceptable, then our options are limited. We could adopt an anti-realism about intentionality or a variety of chauvinism. But recall that accepting chauvinism, recasting it in the language I've been using, here would leave us with the following dilemma: either a creature has L-concepts or that creature does not realize intentional mental states (and does not behave intentionally). This is where concept splitting, coupled with degrees of intentionality, could provide an alternative approach. I've suggested, albeit rudely, that if intentional states are so-called because they are 'about' things in the world, then intentional states structuring around L-concepts are richer and more highly compositional than intentional states structuring around only P-concepts.

I believe the argument for degrees of intentionality has the dual effect of offering a promising alternative to chauvinism (along with other all-or-nothing accounts of intentionality), while diffusing the worry that the ascription of intentionality in the absence of language might put us on a slippery slope resulting in the ascription of intentionality to the likes of earthworms and thermometers. We can accept that earthworms, and perhaps even vervet monkeys, do not have beliefs and desires in the folk-psychological sense. They do not have L-concepts. We can also accept that intentional ascriptions of some form still apply in the case of vervets, but not in earthworms, because there is ample evidence that vervets realize the kinds of mental representations which structure around P-concepts while earthworms do not. We should

not expect the matter of how to determine and describe the intentional content of P-concepts to be resolved without appropriate empirical investigation.

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