This is the penultimate version; forthcoming in *Synthese*.

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A Sellarsian Argument for Nonlinguistic Conceptual Capabilities

Abstract: While it is philosophically contested whether nonlinguistic animals can have conceptual capabilities, it is also philosophically contested whether one can even empirically test for such capabilities. I draw from Sellars' work on psychological nominalism to develop an empirically tractable means of distinguishing between tasks that require conceptual capabilities and those that do not. Tasks that require conceptual capabilities are those that require awareness of abstract relations, whereas tasks that can be solved merely through Sellarsian picturing do not. I argue that relational matching-to-sample tasks cannot be solved through picturing and therefore require awareness of the abstract relations of same and different. Crows and amazons have both been able to succeed at relational matching-to-sample tasks; therefore, there are at least some nonlinguistic animals that have conceptual capabilities. Finally, I consider the objection that one cannot attribute conceptual capabilities without also attributing knowledge, and Sellarsian conditions for knowledge are beyond the capabilities of any nonlinguistic animal. In response, I argue that Sellarsian conditions for knowledge only require an implicit grasp of the is/looks distinction and empirical work with chimpanzees on their understanding of the appearance/reality distinction demonstrates that they can meet this standard. Therefore, language is not necessary for meeting Sellarsian conditions for knowledge.

Animal behavioural scientists have been testing whether nonlinguistic animals have conceptual capabilities or are capable of grasping concepts since at least the 1970s (e.g., Herrnstein et al., 1976). Experimental tests on these capabilities generally test whether nonlinguistic subjects that have learned a distinction through training are capable of generalizing to novel (never seen before) cases. For example, Clark's nutcrackers and black-billed magpies that have learned to distinguish between sets of pictures that are the same (e.g., two identical pictures of a church) and sets of pictures that are different (e.g., a picture of a church and a picture of a puppy) are said to grasp the concepts of SAME and DIFFERENT[1] when they are able to correctly apply these distinctions to novel sets of pictures (e.g., Clary & Kelly, 2016; Magnotti et

[1] I follow the standard approach of putting words in smallcaps when they are meant to refer directly to the concept instead of the thing/relation they are about or the word that expresses them.

al., 2015, 2017; Wright et al., 2016, 2017; Wright & Kelly, 2017). A number of philosophers have argued that these sorts of tasks do not demonstrate that nonlingusitic animals have conceptual capabilities. For example, Robert Brandom (2009) has argued that the ability to correctly apply colour labels, such as 'red' to red things or 'green' to green things, would not show that a parrot was capable of grasping the concepts of RED or GREEN (p. 48). The question then becomes, what sort of task could show that a nonlinguistic animal had conceptual capabilities or grasped a concept?

Some philosophers have argued that nothing could (e.g., Dummett (2010, p. 98)), which would seem to indicate that conceptual capabilities or grasping a concept is an ability that makes no empirical difference. However, this does not seem to be the sort of move that some of the most prominent skeptics of animal minds want to make, such as Brandom (1994), John McDowell (1996), and Alex Rosenberg (1997), among many others. Brandom (2009), for instance, emphasizes what conceptual capabilities (which he takes to be a linguistic phenomenon) allow us to *do*. His argument against attributing conceptual capabilities to the parrot that can sort colours is that the parrot lacks the ability to make inferences from and to the application of a colour label. For example, he argues that the parrot does not have the ability to infer from the application of the label 'red' to the judgement that the object is coloured or that the object is not green (p. 48). This sounds like the sort of ability that could be empirically tested.

Now, one might argue that it is too hasty to presume that these sorts of abilities could be empirically tested because Brandom (1994) takes conceptual capabilities to be normative and the sorts of capabilities that are constitutive of them and constituted by them are also normative (pp. 4-5). For Brandom (2001), the normativity of conceptual capabilities means that they are not exhaustively reducible to the subject matter of the natural sciences (pp. 607-608). So, one could

argue that when Brandom claims that conceptual capabilities require inferential capabilities, he is not making a claim about a causal process that can be empirically tested. I have my doubts about whether Brandom would want to make this move,[2] but it highlights my point: it is contestable whether it is even possible to empirically test if nonlinguistic animals have conceptual capabilities. In this paper, I will draw from a perhaps surprising source, a version of Sellars' (1956) psychological nominalism, to argue that the distinction between conceptual and nonconceptual capabilities can be operationalized in ways that are empirically tractable. In fact, given this distinction, I will argue that there are already empirical results that demonstrate that at least some nonlinguistic animals have conceptual capabilities.

In *Empiricism and the Philosophy of Mind*, Sellars (1956) makes the radical claim that "all awareness of sorts, resemblances, facts, etc., in short, all awareness of abstract entities—indeed, all awareness even of particulars—is a linguistic affair" (§29). Later in his career, Sellars (1981) tempers this emphasis on language so that a more accurate read might be 'all awareness of abstract entities/relations is a conceptual affair.' This paper argues that Sellars' later version of psychological nominalism provides a useful means for distinguishing tasks that can only be completed through conceptual means from those that merely require nonconceptual cognitive capabilities. If completing the task requires awareness of abstract entities/relations, then completing the task requires conceptual capabilities, whether one has linguistic capabilities or not. I argue that this tempered form of psychological nominalism actually shows that some

[2] It seems that anyone who wants to claim that it is not possible to empirically test for normative capabilities has to accept a rather unpalatable consequence: the possibility of normative zombies. A normative zombie would be someone who acts in all the same ways as we do, but nothing they do counts as normative. There would be no way to distinguish between someone who has normative capabilities and a normative zombie because to admit such a possibility would be to admit that there is some empirically testable distinction to be made. This would seem to lead to all sorts of other-minds style problems about normativity (e.g., how can I know that others have normative capabilities when it may just seem like they do?). Luckily, for Brandom (1994), I do not think he faces this issue, given that he claims that normative capabilities emerge out of behavioural practices and dispositions (p. 156).

nonlinguistic animals, such as crows and amazons (a type of parrot), have conceptual capabilities since they are able to succeed at tasks that require an awareness of the abstract relations of same and different.

One might wonder why we should care about what Sellars or a Sellarsian framework has to say about the issue, especially if, as I will argue, there are already empirical results that demonstrate that at least some nonlinguistic animals have conceptual capabilities, and there are already empirically-minded contemporary philosophers who have argued that at least some nonlinguistic animals can meet behavioural criteria for grasping concepts (e.g., Allen & Hauser, 1991; Allen, 1999; Newen & Bartels, 2007). While I think the strongest answer to this worry comes from the way in which the arguments below provide philosophical support for these empirical claims, I think a brief preliminary response for readers less immediately sympathetic to Sellars is worthwhile.

First, many of the most prominent contemporary skeptics of nonlinguistic animal minds and/or conceptual capabilities, including those mentioned above, have not only been heavily influenced by the work of Sellars, but their arguments for that skepticism are motivated by commitments that come from taking some of Sellars' central arguments seriously.[3] So, if an argument from these same commitments, or sensibly tempered versions of them, can be used to demonstrate that at least some nonlinguistic animals do have conceptual capabilities, then much of the motivation for skepticism about such claims will have been undercut. Second, while it can be claimed that Sellars' work is less rooted in the results of animal behavioural science than some contemporary philosophers, it has been argued that Sellars' views on the mind were in part inspired by mid-twentieth century animal behavioural science, such as Edward Tolman's work on

[3] An argument for this claim can be found in Nelson (2024b, pp. 16-48).

cognitive maps with rats (see Olen, 2018; Sachs, 2022). And while there has been little direct crossover between Sellars and contemporary work in cognitive science, Carl Sachs (2016, 2019, 2022) and others (Gładziejewski, 2017; Koons & Sachs, 2022) have recently argued that there are important similarities between Sellars' framework and contemporary approaches to cognition, such as enactivism and predictive processing. So, while the arguments in this paper are directly relevant to those interested in Sellarsian philosophy, the claims in this paper potentially have a wider significance for those interested in animal cognition and the relation between language and conceptual capabilities more broadly.

I start the paper by, first, presenting Sellars' nominalism and show how it provides a way to distinguish conceptual from nonconceptual content. Second, I argue that Sellars' psychological nominalism must be tempered to be a thesis about conceptual frameworks instead of linguistic frameworks. Third, I argue that given this tempered form of Sellars' psychological nominalism, the success of nonlinguistic animals at tasks that require a grasp of abstract relational concepts shows that some nonlinguistic animals have conceptual capabilities. However, I concede that some experimental results that seem to require a grasp of abstract relational concepts can be explained away using Sellars' nonconceptual account of animal representation systems. These systems build cognitive maps by picturing particulars in their environment. However, I then argue that this strategy cannot be used to explain success at relational matching-to-sample tasks, and that the success of nonlinguistic subjects at these tasks justifies the attribution of conceptual capabilities.

Finally, I consider that Sellars takes concepts to be epistemic, meaning that he would only be willing to attribute concepts to a subject if one can also attribute knowledge to them. Sellars' high bar for knowledge means that one can only have knowledge of particulars if one also has

general knowledge about the reliability of one's own observation reports or perceptual beliefs. Some might find it absurd to think that nonlinguistic animals could ever meet this condition. In response, I argue that Sellars' account of knowledge only requires that knowers have an implicit grasp of the is/looks distinction, and I argue that experiments with chimpanzees suggest that at least some nonlinguistic animals can grasp this distinction.

1. Nominalism and Meaning

To understand Sellars' psychological nominalism, we first need to understand nominalism and the problem that it is meant to address. Suppose we have three wooden triangles sitting on a table: an isosceles, an equilateral, and a right-angle triangle.[4] While each of these triangles are separate objects, they all seem to share something: the property of being triangular or triangularity. What is known as the problem of the 'one and the many' or the problem of universals has to do with the metaphysical status of this type of shared property. What allows for it to be true that these three differently shaped and located items are nevertheless triangles? Is triangularity an additional sort of thing in addition to the wooden objects? A very early answer to this problem comes from Plato's dialogues, such as the *Phaedo* and the *Meno*, where it is claimed that there is a mind-independent reality beyond the immediately perceptible where the form of triangularity exists (among other forms) (Kraut, 2022). One can say that it is true that all three objects are triangles because all three objects partake in the universal form of triangularity.

Sellars, as a committed naturalist, argues for a nominalist answer to the problem of universals. In its most general sense, nominalism is the view that the world consists solely of particulars (Rodriguez-Pereyra, 2019). So, the nominalist argues that universals or abstract entities do not exist. While this answer has the benefit of avoiding the introduction of entities

[4] This example is borrowed from O'Shea (2007, p. 63).

that are outside the reach of empirical investigation, it does not immediately provide an answer to the questions put forth in the previous paragraph. In other words, the nominalist still has to explain how it is true that the three distinct objects are triangles without reference to some further entity that the objects partake in. To understand Sellars' unique way of approaching this problem, it is necessary to take a bit of a detour through his philosophy of language, in particular his account of meaning.

Many accounts of meaning take it to be a type of relation between the mind and the world (O'Shea, 2007, p. 49). For instance, it seems like a fair assumption to think that the meaning of a word has something to do with how it relates to objects in the world. For example, the meaning of the word 'dog' seems, at least in part, to be determined by the fact that it refers to dogs. Developing a theory of meaning then is often a matter of determining what type of relation meaning is. This sort of strategy quickly runs into puzzles from a naturalistic perspective (deVries, 2005, p. 28). For example, what do fictional or imaginary terms refer to (e.g., 'unicorns'), and to connect this back to nominalism, what do universal or abstract terms refer to?

Motivated by these types of naturalistic worries, Sellars argues for a non-relational account of meaning. Sellars' account is probably easiest to understand when considering meaning statements like:

(1) 'Et' in French means *and*.

It is unclear how (1) could be interpreted as designating a mind-world relation, especially presupposing a naturalistic ontology. There are no *and* objects in the naturalistic world for 'et's to relate to. Sellars takes 'means' in (1) to functionally classify 'et' as playing the same sort of role in French as 'and' does in English (O'Shea, 2007, p. 57). That said, different versions of this

type of sentence, where the object of the sentence seems to plausibly refer to an object or property in the world, may still tempt a relational analysis, such as:

(2) 'rouge' in French means *red*.

However, Sellars argues that thinking about how 'means' functionally classifies in claim (1) can be extended to sentences like (2), so that, just like in (1), 'means' signals that these two terms play a similar functional role in their respective languages. If this sort of analysis can be extended to all meaning claims, then Sellars argues that meaning should be understood as a metalinguistic term that is used to classify the function of expressions in a lower-level language. In other words, meaning claims identify the functional roles of linguistic terms within and across languages (Sellars, 1989, p. 245).

One might worry that, from this perspective, words would lose their worldly relevance. Even if the meaning of a word is partly determined by its role within a language, surely the meaning of a word has something to do with the way it connects up to things in the world. In response to this sort of worry, it is important to emphasize that Sellars' understanding of the functional role of a word is not limited to intra-linguistic moves (moves within the language itself). Instead, part of what defines a word's functional role are language entry moves and language exit moves, in addition to intra-linguistic moves (Sellars, 1979, p. 69). A language entry move is an encounter with a thing in the world that leads one to use a particular linguistic report or mark (e.g., proclaiming 'a dog!' when encountering a dog), whereas language exit moves are the things one does after using or seeing/hearing a particular linguistic report or mark that are not further linguistic reports or marks (e.g., petting a dog after being told that she is friendly). So, the

functional role that defines the meaning of a particular word will be defined in part by interactions with the types of objects that we generally take the term to 'refer' to.[5]

In order to signal when a term is being used to identify a functional role across languages, Sellars introduces the use of dot quotes. So, a proper analysis of (1) will yield:

(3) 'et's (in French) are •and•s.

Putting a term between dot quotes signals that the term is identifying a functional role across languages. O'Shea (2007) writes that "an '•and•' is thus a sortal term – a term applying to all things of a specific sort or kind – covering any item in any language which plays *that* role (or relevantly similar role)" (p. 59). [6]

Using this type of logical tool, we can now return to the question of nominalism. Sellars (1963) claims that abstract entities, such as triangularity, are metalinguistic entities (pp. 627-628). He argues that a term like 'triangularity' is equivalent to 'the •triangular•'. Michael Loux (1977) writes that for Sellars "while 'triangularity' appears to be an expression signifying a nonlinguistic object, it is really a device for marking the linguistic type realized by the English concrete term 'triangular', the German concrete term 'dreieckig', and so forth" (p. 47). If Sellars' claim about the structure underlying the surface grammar of abstract entity terms is right, then a term like 'triangularity' is "only superficially…an object-language term" (p. 47). This might not initially seem to solve the problem because 'the •triangular•' also looks suspiciously like an

[5] I have put 'refer' in scare quotes here because Sellars (1979) argues that reference is also a non-relational metalinguistic device (p. 82).

[6] Sellars (1979) takes the term in the subject position (e.g., 'et') to be a distributive singular term (discussed in more detail below), so abstract entities are not sneaking in through the subject term either (p. 34). When it comes to the verb, Sellars (1974) regards 'means', once properly analyzed, to reveal itself as a specialized version of copula (hence, 'are'). Since he takes the copula to be non-relational, 'means' should not be regarded as signaling a relation (p. 431).

abstract entity itself. However, Sellars (1963) argues that 'the •triangular•' is a distributive singular term (p. 633).

Sellars' (1963) example of a distributive singular term is 'the lion' in a sentence like 'the lion is tawny' (p. 631). 'The lion' in 'the lion is tawny' is not meant to refer to *an* individual lion but refers to *individuals* that are lions. 'The lion' does not refer to a universal because the universal is not tawny, it is the individual lions that are tawny (p. 631). So, 'the lion' is a singular term but it distributes across individuals. While 'the lion is tawny' sounds are bit odd to my contemporary ear, distributive singular terms are widely used. Loux (1977) gives a number of examples, including 'the Ferrari is a fast car' and 'the oak tree is deciduous' (p. 48). In addition, Sellars (1963) points out that not all cases rely on there being a definite article in front of the proper noun, such as 'man is rational' (p. 633). Given that a distributive singular term, like 'the •triangular•', distributes across individuals, Sellars takes it to be functionally equivalent to '•triangular•s' (p. 632).

Sellars takes his analysis to have shown that abstract objects are actually metalinguistic devices that "serve to pick out linguistic types or roles that may be played by or 'realized in' many linguistic materials or 'pieces'" (O'Shea, 2007, p. 67). Summarizing Sellars position, O'Shea writes that Sellars' functionalist nominalist account of abstract entities means that "•triangular• will cover 'any item in any representational system that plays the relevant role" (p. 68). Given that Sellars takes abstract entities/universals to be metalinguistic features of languages, his psychological nominalism, introduced earlier, straightforwardly follows. As a reminder, Sellars' (1956) psychological nominalism is the position that "all awareness of abstract

entities…is a linguistic affair" (§29).[7] If abstract entities/universals are features of our languages, then any awareness of them will presuppose the acquisition of such a linguistic framework.

Now, if the position is left here, any attempt to use psychological nominalism to argue for nonlinguistic conceptual capabilities will be contradictory or incoherent. In his later work, Sellars began to relax the hardcore linguistic intellectualism inherent in his earlier arguments for psychological nominalism. Summarizing Sellars' position on the use of dot quotes, O'Shea (2007) writes:

> An abstract singular term such as 'triangularity' is a culturally evolved metalinguistic device for conveying the perceptual-inferential-practical role played by •triangular•s in our ongoing cognitive engagements with physical reality. That is, it indicates the role played by any item in any language *or conceptual framework* that behaves in the same or relevantly similar normatively pattern-governed way as do typical utterances and inscriptions of *triangular*s in English and *dreieckig*s in German (p. 72, emphasis mine).[8]

Here we can see that the dot quotes can be used to identify functional roles across conceptual frameworks, instead of just linguistic frameworks. In "Mental Events", Sellars (1981) suggests that dot quotes can generalize over both linguistic and nonlinguistic representational systems, using the minds of nonlinguistic animals as examples of nonlinguistic representational systems (§76).

Sellars takes animal representation systems to build cognitive maps through the process of picturing. Sellars (1981) writes: "I propose to argue that to be a representational state, a state of an organism must be the manifestation of a system of dispositions and propensities by virtue

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[7] It might seem like I am missing the information about knowledge of particulars also being a linguistic affair here, but I take this result to follow from the claim that knowledge of abstract entities/relations is a linguistic affair. Since knowledge of particulars for Sellars is predicated on having general knowledge, knowledge of particulars will presuppose knowledge of abstract entities/relations, such as categories like 'triangular.' I will address worries about attributing epistemic states in section 3.

[8] Asterisk-quotes, sometimes referred to as star-quotes, differ from dot-quotes. Sellars (1963) writes that asterisk-quotes "form the name of the sign design illustrated between [expressions], thus *red* is the name of the design which in English is the written word 'red'" (p. 627 fn. 3).

of which the organism constructs maps of itself in its environment, and locates itself and its behavior on the map" (§56). The representations that make up these maps are "complex objects that convey a wealth of information…in virtue of their sign-design" (Koons & Sachs, 2022). To understand how sign-design can convey a wealth of information for mapping systems, consider how the size of a circle on a roadmap can represent a city's population at the same time as it can represent its distance from other cities by the relative position of the circle on the map. Sellars takes objects in the world and the representations that make up cognitive maps to (ideally) stand in isomorphic relations that he refers to as picturing.

His inspiration for this idea comes from the early Wittgenstein's picture theory of meaning; however, instead of taking picturing to account for meaning, Sellars takes picturing to exclusively be a causal relation between representational systems (including linguistic ones) and the world. An example of this relation used by both Wittgenstein (1922, §4.014) and Sellars (2007a, §40) is the relation between the grooves on a record and the music produced by the record when played. This example helps emphasize that picturing is not necessarily imagistic in the usual Humean or Lockian sense, instead there is a "complex structural similarity" between the placement of the grooves on the record and the sounds produced when the record is played (O'Shea, 2007, p. 148). There will be more to say below on what sorts of things can and cannot be pictured, but this introduction should be sufficient for beginning to show how psychological nominalism can be used to distinguish conceptual from nonconceptual content.

While cognitive map building and picturing relations are a feature of all representational systems, systems that are sophisticated enough to be regarded as conceptual also include metarepresentations (deVries, 2005, p. 45). This fits well with Sellars' later version of psychological nominalism if instead of taking abstract entities to necessarily be metalinguistic

devices, we take them to be metarepresentational devices. Picturing is a causal relation and is therefore limited to the actual nominalistic structure of the world, leading to representations of particulars that sit (ideally) in isomorphic relations with the order of things in the world. Metarepresentations allow for representations to be grouped together under the sorts of categories we usually identify with abstract objects or universals (e.g., triangularity). All awareness of abstract entities will then be dependent upon the ability to form metarepresentations, instead of metalinguistic devices. Since awareness of abstract entities is dependent upon conceptual capabilities, we can identify which beings have conceptual capabilities by determining which beings are limited to representing the nominalistic structure of reality and which beings are capable of solving tasks that require an awareness of abstract entities/relations.

However, framing the question around metarepresentations is potentially misleading for two reasons. First, the use of the term metarepresentation is a bit awkward because I suspect much of what operates on the higher-order levels of representational systems are not representations in the traditional sense. Huw Price (2013) has distinguished between what he calls e-representations and i-representations. An e-representation is an "environment tracking" representation which includes everything from fuel gauges to cognitive maps. An i-representation is a representation that plays an "internal functional role" (p. 36). Price has argued that both of these should be called representations because the former plays the traditional role of corresponding with the world and the latter plays an internal functional role in a "cognitive or inferential architecture". Price thinks that keeping these two ways of representing apart (even if the same statement can represent in both ways) avoids the sorts of epistemological worries that motivate eliminativist approaches to representations. So, when I call the classificatory functions

at the higher order levels of representational systems 'representations', I mean something like i-representations whereas Sellars' maps are better thought of as e-representations (as Price himself has discussed (pp. 147-194)). So, while its use may be a bit awkward, there are reasons for regarding these higher-order functions as a type of representation.

Second, Sellars and his interpreters use of the term 'metarepresentation' does not line up with the way in which it is often used in developmental psychology, linguistics, and other disciplines. The term, as it is often used in these disciplines, requires one to be aware that one is representing representations. So, metarepresentational abilities are often taken to require a grasp of the concept REPRESENTATION and are usually tested by evaluating a subject's ability to attribute false beliefs (Whiten & Suddendorf, 2001). So, it is generally assumed that metarepresentational capabilities are metacognitive capabilities and vice versa.[9] This definition seems much more demanding than the way that Sellars and his interpreters are using the term. I take 'metarepresentation', as used by Sellars and his interpreters, to refer to representations that group, order, or function over other representations in ways that cannot be pictured. This is supported by the fact that Sellars cannot help himself to the more the demanding definition. If we accept that the underlying structure of an abstract term is something like •triangular•s, then *it does* follow that awareness of abstract entities requires metalinguistic or metarepresentational devices in this less demanding sense. However, an argument for the more demanding version of metarepresentation would stretch credulity because such an argument would also imply that users of the term 'triangularity' are aware that they are using the term to classify linguistic or representational entities. The surface grammar of our languages, or for that matter, the intuitive appeal of relational accounts of meaning, implies that many people do not take themselves to be

[9] Though some theorists have argued that metacognition and metarepresentation can come apart (e.g., Proust, 2007; Vierkant, 2012).

referring to mere linguistic/representational entities. To avoid confusion, I will call these non-picturable representations that are not necessarily metarepresentations in the strong sense, 'second-order representations' instead of 'metarepresentations'. So, given this clarification, we can ask: can nonlinguistic animals have second-order representations?

Before answering this question in the affirmative, I want to assure the reader that this interpretation of psychological nominalism does not include a surreptitious thumb on the scale in favour of nonlinguistic concepts. Well regarded interpreters of Sellars, such as deVries (2005) and O'Shea (2007), hold similarly 'relaxed' interpretations of psychological nominalism but maintain that conceptual and/or second-order representational capabilities belong exclusively to the domain of linguistic representational systems. Furthermore, as I will show in the next section, Sellars' account of nonconceptual cognitive maps formed through picturing relations provides his theory with a means of explaining away the sorts of experimental results that have led some animal behavioural scientists to attribute conceptual capabilities to nonlinguistic animals.

2. Nonlinguistic Conceptual Capabilities

Given Sellars' psychological nominalism, testing for nonlinguistic conceptual capabilities is a matter of testing a subject's ability to use higher-order representations. The second-order representations that I will focus on in this section are the relations of same and different. SAME and DIFFERENT are considered abstract concepts because they "do not have a bounded, identifiable and clearly perceivable referent" (Borghi et al. 2017: 263). In other words, if the world consists solely of particulars, there is no particular that one can point to and say "see, that is what difference is." Furthermore, there is no restriction on the types of objects that can share the relation of same or different as long as they can be classed as sharing a similarity or a difference. While it might seem odd to regard same and different as abstract, but if we assume

Sellarsian nominalism, they cannot be regarded as basic constituents of the world. Instead, awareness of same and different as relations will depend upon the second-order representational capacities that Sellarsians take to only be available to creatures with linguistic capabilities. However, given the identification of higher-order representational capacities with conceptual capabilities, if a subject can demonstrate awareness of relations like same and different, then one should regard them as having conceptual capabilities. In this section, I will argue that at least some nonlinguistic animals can pass this test and therefore that there is an argument from Sellarsian nominalism to the existence of nonlinguistic conceptual capabilities. However, before I get there, it is first worth considering what results will not be sufficient for this conclusion and how Sellarsian picturing can show that some of the results that animal behavioural scientists have taken to demonstrate a grasp of SAME and DIFFERENT can be explained through other means.

Some scientists have taken identity matching-to-sample (IMTS) tasks as evidence for the concepts of SAME and DIFFERENT (Castro & Wasserman, 2017). IMTS tasks require a subject to consider a sample card and then pick a card that matches with the sample card. For example, when testing the ability to match colours, a subject could be presented with a white sample card and then be asked to select from two potential matches: a white card and a black card. If testing for the ability to grasp SAME, the correct match is the white one, and if testing for the ability to grasp DIFFERENT, the correct card is the black one.

In Smirnova et al. (2021), crows and amazons were trained and tested on IMTS tasks for colour, shape, and number respectively, before being tested on size with no additional training. Crucially, tests include novel cards, to make sure that the subjects are generalizing from the training procedures instead of merely being conditioned to pick certain cards. It is worth noting

that success at the task often requires the subject to identify a particular feature on the card as the one to be matched. For example, numbers are represented by the number of shapes on a card, so if the sample card has a red square and a green triangle on it, a potential choice could be between a card with a red square on it and a card with a black circle and a blue rectangle. If testing for SAME, the right choice would be the card with the black circle and the blue rectangle because it has the same number of shapes on it as the sample card. During tests on the dimensions of colour, shape, and number, the birds made the correct matches for novel sets of cards 79% of the time. When it came to the dimension that they had not been previously trained on (size), they matched correctly 82% of the time when the sample card matched with the comparison card on size alone, and 83% of the time when the comparison card matched on both size and shape (p. 111).

While these results do provide insight into the cognitive capabilities of nonlinguistic animals, from a Sellarsian perspective they do not provide a reason to attribute conceptual capabilities.[10] As discussed in the previous section, Sellars uses cognitive maps that picture the animal's environment to explain the behaviour of nonlinguistic animals. Here, I will argue that this sort of approach is sufficient for explaining the success of the crows and amazons at the IMTS tasks. To be clear, just because success at a task can be explained using picturing does not mean that the task was solved nonconceptually. Sellars takes picturing to be a component of any empirically adequate language (deVries, 2005, p. 53), so picturing will be a process that is shared across both linguistic and nonlinguistic representational systems whether they have conceptual capabilities or not. However, since picturing can be done by nonconceptual and conceptual systems alike, if picturing alone is sufficient to explain success at a task, then that performance

[10] Though, I have previously argued that the ability to make numerical discriminations does provide a reason to attribute conceptual capabilities to nonlinguistic animals (Nelson 2020).

alone does not justify the attribution of conceptual capabilities. If picturing is not sufficient to explain success at the task, then we have a reason to attribute conceptual capabilities to the subject.

To see how picturing can be used to explain success at IMTS tasks, we need to get a better sense of how picturing works. One of the areas where Sellars (2007b) develops the idea of picturing is in his discussion of the fictional language of Jumblese. To support his argument for nominalism, Sellars (1979) develops Jumblese to show that predicates are in principle dispensable (p. 51). The marks and sounds that make up a language are part of the causal and spatial order that make up the naturalistic world. However, when it comes to analyzing these objects, it seems like there is an unavoidable relationality built into them that is hard to make sense of from a nominalist perspective. For example, if we look at a sentence like 'the dog is red', it seems to be built out of a relation between a subject ('the dog') and a predicate ('is red'). DeVries (2005) writes that "as long as all sentences are thought of as combinations of linguistic tokens, sentences seem inescapably relational entities, and that relationality seems to play an indispensable role in the sentence's ability to perform its predicative function" (p. 82). Jumblese is then meant to show that one can build a language that can fulfil the functional role of predicates without the relational structure that seems to be built into them. In other words, "if predication does not have a relational structure, then there is no need for any supposed relatum that is posited simply to fulfil this (non-existent) relation" (p. 82).

Jumblese is a language that is built solely out of "individual constants and individual variables" (deVries, 2005, p. 82). One is able to convey information that is usually communicated through a predicate by the ways in which names are written or arranged. The inspiration for this idea comes from Wittgenstein's (1922) claim in the *Tractatus* that we can

better understand the role of the "propositional sign" if we imagine propositions as made up of physical objects like tables and chairs, "instead of written signs" (§3.1431). If propositions were made up of "spatial objects" then "the mutual spatial position of these things" would express "the sense of the proposition" (§3.1431). So, instead of claiming that "'the complex sign '*aRb*' says that *a* stands to *b* in the relation *R*', we ought to put, '*That* '*a*' stands to '*b*' in a certain relation says *that aRb*'" (§3.1432). Jumblese takes this possibility seriously by having syntactical features, such as the way in which a sign is written or the spatial relations it shares with other signs to communicate the type of information that is normally conveyed by subject-predicate relations. For example, we can convey that an object is red by bolding the sign, so 'x is red' could be translated to '**x**'. Likewise, we could use italics to communicate that an object is brown and then translate 'y is brown' into '*y*'. Jumblese could then translate 'x is on top of y' by physically putting one sign above the other, so 'the red apple is on top of the brown table' becomes:

a
b

Sellars (1979) takes the possibility of a predicate-free language, like Jumblese, to indicate that predicates are in principle dispensable (p. 51). What predicates are doing in a sentence is not establishing a relation between a name and some property or relation. Since the functional role normally played by predicates in Jumblese can be fulfilled by physically modifying and arranging names, the function of predication is better understood as "a matter of qualifying and arranging names" (deVries, 2005, p. 89).[11] Importantly for this paper, Jumblese shows a way in

[11] To be clear, Jumblese is a language that lacks predicates (taken as additional objects that then must be related to a name) but does not lack predication as a function (through the arrangement and qualification of names). So, if we take a bolded sign as communicating that the 'object is red', we should not think of the predication function as some additional object (e.g., boldness) beyond the name itself that gets its meaning by standing for some other object (e.g., redness). Instead, the boldness is the form or mode of presentation of the sign. So, we should not take

which complex signs can picture objects in the world through causally related isomorphic patterns. Therefore, if a pattern can be represented in Jumblese, then it can be pictured.

So, given the above exposition, let's return to IMTS tasks. Consider a task where a subject is asked to match based on the size. For example, the sample card could have a large oval on it and the possible match cards have either a small or large triangle on them. The correct response, if testing for SAME is to select the large triangle because like the oval, it is large. One way to picture this task would then be to represent the shape as a bolded sign if it is large and as an italicized sign if it is small.[12] So, the sample card could be '**a**' and the possible matches could be '*b*' and '**c**'.[13] These representations provide enough information to solve the IMTS task without any reference to the concepts of SAME and/or SIZE. The training could condition the subject to act according to the rule of criticism of 'seek X' where 'X' is a bolded sign. Now, this is a little tricky considering that the birds were never trained on size. Instead, they were trained and tested on colour, shape, and number, before being tested on size with no additional training. So, figuring out that a sign being bolded is the relevant feature in the task is not something that the subjects could have been directly conditioned for during training. However, the birds could

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Jumblese as simply providing an alternative notation for predicates, though we can take it as providing an alternative notation for predication (one that highlights that one doesn't need to start multiplying objects in one's ontology in order to account for such a function). I would like to thank Jonathan Phillips (personal communication) and Ross Nelson (personal communication) for both raising this worry and Willem deVries (personal communication) for helping me understand how to answer it.

[12] To be clear, I am not claiming that the subjects are using Jumblese to solve the task. Instead, thinking about whether the subjects could use Jumblese to solve the task provides a way to consider whether picturing alone could be used to solve the task since Jumblese is a form of picturing.

[13] For the moment, I am ignoring shape as a relation that needs to be conveyed by picturing because it is not relevant to current example. One could represent it by, for example, putting signs in different fonts depending on their shape. In my discussion of relational matching-to-sample tasks below, I will use this possibility to walk through a possible example.

have been conditioned to 'seek X' where 'X' is the qualifying feature of the sign that is not shared by both potential matches,[14] and that should be sufficient to solve the task.

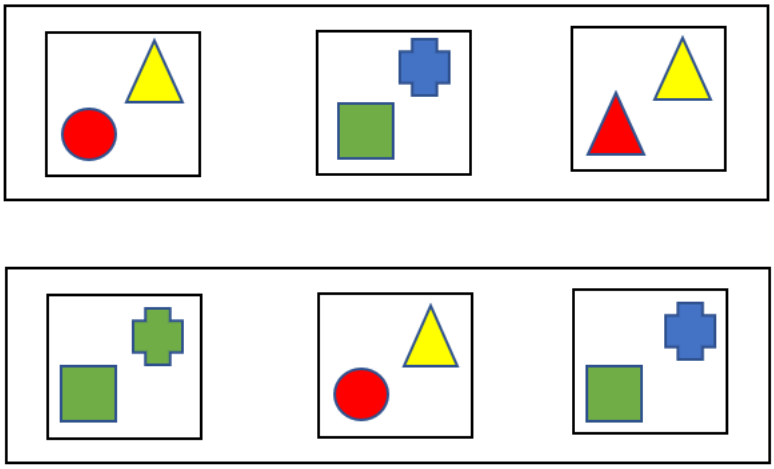
While this strategy alone is sufficient for solving IMTS tasks, it is not sufficient for solving relational matching-to-sample (RMTS) tasks. In Smirnova et al. (2021), after the subjects were trained and tested on IMTS tasks, including the transfer task for size, they were tested on RMTS tasks *with no additional training*. RMTS tasks require the subject to match cards that share relations instead of physical features. For example, the sample card could have a blue cross and a green square on it, the left possible match, a yellow triangle and a red circle, and the right possible match, a yellow triangle and a red triangle (see the top set of cards in Figure 1). In this case, if testing for SAME, the correct choice is the left card because like the sample card, it has two different shapes on it. In other words, the relation shared is difference, so matching according to SAME requires one to identify that what is the same between the sample card and the correct matching card is that both of them represent the relation of difference. The transfer tests for relations were on size, shape, and then colour. To illustrate, the relation of difference can also be matched according to colour instead of shape when, for example, the sample card has a red circle and a yellow circle on it, the left card, a green square and a green cross, and the right card, a green square and a blue cross (see the bottom set of cards in Figure 1). The right card is the correct choice in this example because like the example card, it features two differently coloured shapes instead of two shapes with the same colour. The birds were tested on both IMTS and RMTS tasks in the same set of trials and succeeded 75% and 73% of the time, respectively. Smirnova et al. (2021) writes that:

[14] Notice that we need the latter part of this rule because the objects often have properties irrelevant to task. For example, in the matching task for size, all of the shapes are the same colour which would need to be conveyed through a qualifying feature of the sign design.

> These results represent strong evidence that the birds spontaneously perceived the relations-between-relations without ever having been explicitly trained to do so. We call this perception spontaneous because neither before nor during the three RMTS tests were the birds given differential reinforcement training on trials in which the sample and comparison stimuli shared no physical features (p. 112).

The term 'relations-between-relations' refers to the fact that the only thing shared by the sample card and the matching card are the relation of same or different. The match is then made based on the relation between the cards (that they share the relation of same or different).[15]

Figure 1



The author's representation of two possible set of cards for an RMTS task. For many more examples of the cards actually used, see Smirnova et al. (2021).

It might not be immediately obvious why picturing cannot provide a possible explanation for this task. The relations of same and different can be captured by two-place predicates, for example, 'x is the same as y.' Jumblese demonstrates that the information provided by predicates can be functionally communicated through the qualification and arrangement of names. The

[15] Chimpanzees trained to use symbols have also succeeded at RMTS tasks (Thompson et al., 1997). In addition, Irene Pepperberg (2021) demonstrated that an African grey parrot was able to answer questions about what property made objects the same or different. While Pepperberg's experiment is not an RMTS task, it is another task where the relation itself must be treated as the object that guides the search. For a discussion of these results within a Kantian framework, see Nelson (2024a, pp. 727-734).

cards could then potentially be represented as names that are close together if they share the relation of sameness and far apart if they share the relation of difference.[16] The cards in the first example discussed for RMTS tasks (the top set of cards in Figure 1) could then be translated using the following manual, with colour being represented by the colour of the picturing sign[17] and shape by the type of font:

x is a triangle = 𝖝

x is a circle = 𝔵

x is a square = 𝚡

x is a cross = x

The cards would then be:

Left match card = [a b]

Sample card = [c d]

Right match card = [e f]

On the one hand, this seems like it would be enough to explain success at the task.[18] The shapes and relations on each card can be represented by a Jumblese correspondence to the shapes on the cards. The fact that the subject needs to make a match based on a comparison of the arrangements of names and not just their modifications still fits into what can be communicated through Jumblese. So, it is not immediately clear why this should be regarded as making much of a cognitive difference.

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[16] My thanks to Jonathan Philips (personal communication) for suggesting this as a representational possibility.

[17] Colour should probably not be part of the picturing representations, but I am using it here as a shorthand. In proper pictures, colour would probably need to be represented through other types of modifications to the names, such as a strike-through for red and an underline for yellow.

[18] I recognize the proposed solution here might seem a bit unnatural or over-representationalized, but the point here is not to say that the task is being solved through Jumblese, instead Jumblese is being used to test the limits of picturing.

On the other hand, there is something odd about representing same and different using spatial orientations that are supposed to line up in isomorphic relations with the objects that they picture in the world. While the holistic features of Sellars' account of concepts are usually recognized, it is important to note that the nonconceptual content of animal representation systems also needs to be understood as functioning in systematically holistic ways. DeVries (2005) writes that "it takes a whole system to represent in any interesting sense" (p. 53). The problem with representing sameness and difference by using the physical features and arrangements of names is that it rules out the possibility of using that specific physical feature or arrangement to represent some other physical feature or arrangement of objects in the world. So, take the example used above of using distance to represent the relations of same or different. If the distance between names is representing same or different, the standing relation of distance between names cannot coherently be used to represent the actual distance between objects. The plausible conjecture I take from this example is the claim that any attempt to represent the relations of same and different using a physical arrangement of names will lead to the inability to represent some actual physical arrangement of objects that is needed for animal representation systems to coherently navigate the world. This conjecture is not meant to be a criticism of picturing as way of representing the world, instead it shows that there are relations that will require abilities beyond mere picturing.

The reason for this inability is that the relations of same and different are not physical relations that can be captured through the qualification and arrangement of names through first-order predicates. Instead, the concepts of SAME and DIFFERENT are second-order predicates: they function over other predicates (or the features of Jumblese represented through the physical qualification and arrangement of names) instead of over names. This is possible to see when one

notices that SAME and DIFFERENT always require the specification of a further concept, such as SIZE, SHAPE, and COLOUR.[19] The need for the specification of a further concept can be seen in the example discussed above where the sample card and both possible matches share the relation of different colours, but the different colours are irrelevant to the matching task which requires one to recognise that the relation of different shapes is the relation that is meant to guide the choice.

The argument I am making here is similar to the one made by Frege (1950) in *The Foundations of Arithmetic* where he argues that numbers are second-order concepts. In that work he points out that if one is handed a deck of cards and asked, "How many?" one has not been given enough information to answer the question. Instead, a further concept has to be identified, such as "cards, or packs, or points" (§22). This argument also applies to the concepts of SAME and DIFFERENT; if one is handed a deck of cards and asked, "Are they different?", one does not yet have enough information to answer the question. A further concept needs to be specified in order to answer the question.[20] For example, are they all the same in the sense that they are all cards, or are they all the same suit, or in a standard deck of cards, are they all different because no two cards are exactly alike (except for perhaps the jokers). Discussing Frege's claim,

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[19] An anonymous reviewer proposed 'this is the same/a different dog' as counterexample here. However, in this case, the relevant concept is DOG. Perhaps the reviewer is worried that it is too quick to say that this is a concept since I have demonstrated that this sort of information can be communicated through mere picturing. However, 'is a dog' is a predicate, meaning that while this information can be communicated through the qualification and arrangement of names, the addition of 'same' or 'different' will have to operate on that qualification and arrangement of names. I suspect that such systems will have concepts like DOG, but perhaps one could argue that only the weaker claim is justified, that SAME and DIFFERENT are second-order representations (and therefore concepts), but one cannot say that they are *second-order* concepts. This weaker claim is still sufficient to support the central claims in this paper, but there is certainly important work left to be done on thinking through how broad or limited these systems will be.

[20] An anonymous reviewer has raised the worry that there is a straight-forward logical answer to both of these questions that pertains to the objects themselves. How many cards are there, and do they differ from each other? I think the reviewer is right insofar as if someone hands you a deck of cards and asks, "How many?", the intuitive response will be to count the number of cards. However, this response is intuitive because the assumed or implied concept here is most likely CARDS, or perhaps OBJECTS. The lack of an explicitly stated concept does not mean that there is not a concept operating in the background, and the question can only be regarded as coherent if there is such a concept operating in the background.

Brandom (1994) writes that "counting is intelligible only with respect to a sortal concept" (p. 438), and the same can be said for applications of SAME and DIFFERENT.

The fact that the relations of same and different cannot be pictured means that propositions that include 'same' and 'different' are not what deVries (2005) calls "first-order, matter-of-factual atomic statements" (p. 51). For Sellars, only first-order atomic statements can be pictured. DeVries writes that "atomic statements contain no logical words, no quantificational structure. In a subject-predicate language they are configurations of names and predicates; in Jumblese…atomic sentences would be quite literally configurations of names" (p. 51). 'Same' and 'different' cannot be a part of first-order atomic statements because they function metalinguistically or on a second-order representational level to classify the functional roles of predicates in linguistic/representational systems, similarly to the way in which 'meaning' or 'reference' do. If this suggestion is right, and RMTS tasks demonstrate the ability to classify predicates as playing the same or a different functional role, then the crows and amazons in Smirnova et al.'s (2021) experiments pass the bar that Sellars takes to distinguish conceptual beings from other types of representational systems.[21]

[21] An anonymous reviewer pointed out that in his later work, Sellars (1981) seems to regard the main distinction between the capabilities of linguistic and nonlinguistic animals to be that the former has logical capabilities whereas the latter does not (p. 340). So, one could potentially argue that while the experiments above demonstrate second-order representations, they do not demonstrate logical representations which is what is truly necessary for conceptual capabilities. I think this is an important and substantial objection that needs to be taken head on, but I leave it for future work partly because figuring out a way to coherently make this objection from a Sellarsian perspective in the first place would take substantial work and space. For instance, if the objector admits that nonlinguistic animals can have second-order (unpicturable) representations, but then denies that they are sufficient for conceptual capabilities, they would need to also demonstrate that such a position does not undermine the very nominalism that motivated it in the first place. Likewise, they would need to demonstrate that Sellars can make a non-arbitrary distinction between second-order representations and logical representations, especially since some Sellarsians have been motivated by Sellars' philosophical commitments to expand what counts as a logical concept to potentially include concepts we would not ordinarily call logical (e.g., Brandom, 2009, p. 89). My own suspicion is that Sellars' notion of 'logical' in the respect that is supposed to drive a wedge between language and non-language users is best regarded as a broad concept that encompasses more than just the basic constituents of truth-functional logic, but I will have to leave such an argument for later work.

3. Concepts and Knowledge

The central thesis of this paper is that, given Sellars' psychological nominalism, success at RMTS tasks must be interpreted as demonstrating conceptual capabilities. However, Sellarsians will likely argue that the connection between concepts and knowledge means that any such attribution to a nonlinguistic animal is still innappropriate. As deVries (2005) writes, "to have a concept is not just to have a disposition", instead "the subject and the system must be *epistemologically reflective* in that the subject exercises her concepts knowingly" (p. 111). Sellars' account of knowledge is infamously steep and is read by many to be out of reach for nonlinguistic animals and human children as old as four (Triplett & deVries, 2007).[22] So, if conceptual capabilities require epistemic capabilities, then one could undermine the claim that nonlinguistic animals that succeed at RMTS tasks have conceptual capabilities by arguing that they lack the necessary epistemic capabilities. If it is assumed that the tempered form of psychological nominalism and Sellars' account of knowledge can be coherently held at the same time, the objector could argue that the inability of nonlinguistic animals to meet conditions for knowledge shows that something has gone wrong with the preceding analysis of RMTS tasks. In this section, I will respond to this objection by arguing that empirical work suggests that some nonlinguistic animals are able meet Sellarsian conditions for knowledge.

Sellars gives two conditions for knowledge, one of which is generally regarded as an externalist condition, and the other as an internalist one. Sellars (1956) takes the epistemic

[22] Though one could of course accept that concepts require knowledge but then deny Sellars' account of knowledge in order to argue for a less demanding condition. For example, philosophers, such as Hilary Kornblith (1999, 2012) and Andrew Fenton (2007, 2012) have argued that nonlinguistic animals can meet externalist requirements for knowledge. More recently, Andrew Lopez (2023) has argued that nonlinguistic animals have know-how (p. 149), and one could potentially argue that this sort of knowledge is sufficient for granting conceptual capabilities (though Lopez remains agnostic on whether nonlinguistic animals have conceptual capabilities (p. 141)).

authority of a belief or observation report, such as ‘x is green’ to come from the ability to “infer the presence of a green object from the fact that someone makes this report” (§35). If one’s beliefs or reports are reliable indicators of what is actually the case, then their beliefs or reports have a positive epistemic status; in other words, the first condition for knowledge requires that one’s beliefs/reports are epistemically efficacious (at the very least, for others). However, this hurdle alone is not sufficient for actual knowledge because arguably a car reliably reporting that its door is open could pass this bar (deVries, 2005, p. 121).

So, in addition, Sellars (1956) argues that in order for a subject to have knowledge, a subject’s beliefs/reports must not only be reliable indicators of what is the case, but the subject must also know that their judgements are reliable (§35). The problem (as even interpreters of Sellars as sympathetic as deVries (2005, pp. 129–130) and O’Shea (2007, p. 215 fn. 35) have pointed out) is that if explicit knowledge of the reliability of one’s perceptual states is required for perceptual knowledge, then perceptual knowledge is likely a rare achievement outside of epistemology seminars. Furthermore, the condition potentially paints a misleading picture of the phenomenology of perception. One does not normally make an observation report or have a perceptual belief and then infer from that report/belief, in addition to auxiliary premises about the reliability of one’s reports/beliefs, to knowledge of the way the world actually is (O’Shea, 2007, pp. 215–216 fn. 35). Instead, one sees that the ball is red by, well, seeing that the ball is red.

For that reason, most interpreters of Sellars tend to deflate what the internalist requirement is asking for. For example, deVries (2005) argues that knowledge of one’s own reliability need only be implicit (p. 130). Likewise, O’Shea (2007) claims that a child has implicit knowledge of their perceptual reliability when they can “wield the various ordinary

is/*looks* conceptual contrasts concerning reliable and unreliable conditions of perception" (p. 128). The is/looks distinction referred to by O'Shea emerges from Sellars' critique of foundationalist approaches to knowledge that take appearances to be epistemically prior to claims about reality. Sellars (1956) thinks that appearance theorists have misunderstood the 'logic of the looks' which he takes to show that claims about reality are conceptually prior to claims about appearances (§§10-20). For Sellars, the "fundamental epistemic function of the concept of appearance or the logic of 'looks' is a conceptual capacity that we first acquire in learning the sorts of circumstances (awkward lighting, etc.) in which having an experience of seeing that something is red is not to be trusted as such in these particular circumstances" (O'Shea, 2007, p. 121). For Sellars (1956), talk of looks and appearances signals that one is not fully committed to the application of a particular concept in an observation report or perceptual belief (§12).

To illustrate this claim, Sellars (1956) imagines the owner of necktie store in which electric lighting, having recently been invented, has just been installed (§14). The lighting conditions make the ties that are blue under normal lighting conditions look green. If the store owner were to demonstrate this effect to an interested shopper by taking the green looking tie outside to show that it is blue under standard lighting conditions, the interested shopper, unaccustomed to electric lighting, might be tempted to say that the tie is green inside but blue outside. However, given that the shopper knows that the colour of objects does not change by merely being moved from one location to another, he develops 'looks' language to signal the "holding back from endorsing or epistemically committing to the idea" that the tie is green "given the awkward lighting conditions" (O'Shea, 2007, p. 121).

Given that looks/appearances talk is used to signal that one is not fully endorsing is-talk, talk of looks/appearances is parasitic on is-talk. Sellars (1956) writes that:

> …the concept of *looking green*, the ability to recognize that something *looks green*, presupposes the concept of *being green*, and that the latter concept involves the ability to tell what colors objects have by looking at them – which, in turn, involves knowing in what circumstances to place an object if one wishes to ascertain its color" (§18).

O'Shea (2007) summarizes the point as:

> Sellars' account of the endorsement or epistemic appraisal dimension of the concept of appearance, then, is roughly that, as an element in a perceptual experience, an •*x looks* red• is a directly object-caused or stimulus-prompted (i.e., non-inferential) conceptual response that implicitly functions to withhold commitment to aspects of what would normally, in standard conditions, give rise to an •*x is* red• conceptual response (p. 122).

O'Shea's deflated interpretation takes this distinction to show what sorts of abilities would signal an implicit grasp on the reliability of one's own observation reports/perceptual beliefs (p. 215 fn. 35).

Facility with the is/looks distinction demonstrates implicit knowledge of the reliability of one's conceptual discriminations because it requires one to recognize whether the conditions are standard or nonstandard, and how the standardness or nonstandardness of those conditions affects whether one should fully endorse, partially endorse, or not endorse their application of a particular concept in their observational report/perceptual belief. O'Shea (2007) writes that:

> Sellars' account therefore does not require that one be able to launch into perceptual epistemology if one is able to see that something is green. It does, however, distinguish between, on one hand, those who are perceptual knowers within a conceptual framework of reason-giving to the extent that they can, *if called upon* by circumstance or by criticism, make at least some minimal distinctions concerning the sorts of conditions in which their color judgements are reliable or unreliable and, on the other hand, those proto-perceivers who cannot (or cannot yet) do so (p. 216 fn. 35).

In other words, in order for one to count as a knower, when called upon one must be able to demonstrate an ability to distinguish something being one way and merely appearing that way.

While O'Shea and deVries assume that this is a linguistic capability, there is empirical work with chimpanzees on the appearance/reality distinction. Unfortunately, as far as I am aware, there is no work on this distinction with birds, but if chimpanzees are able to use this distinction, then it does demonstrate that the ability does not depend on linguistic capabilities. In Krachun et al. (2016), they tested the ability of chimpanzees to make successful discriminations in the face of illusory stimuli, including the use of "lenses to change the apparent size of food items…a mirror to change the apparent number of items, and tinted filters to change their apparent color" (p. 53). All of the subjects tested on the size-changing lenses passed, half of the subjects passed the mirror task, and five of seven subjects passed the filter task.

It is worth briefly walking through one of these tasks (Krachun et al., 2016). For the lens tasks, the subjects were first tested to make sure that they preferred larger grapes to smaller grapes. Lenses were then used to make the smaller grapes appear large and the larger grapes appear small. Before the task, the properties of the lenses were demonstrated to the subjects. In the first task, the subjects watched the experimenter place the grapes behind the lenses. To rule out the possibility that the subjects were merely tracking the placement of the larger grape, in the next task, the lensed containers were stacked on top of each other and baited in view of the subject. The subject's vision was then blocked, and one container was placed to the left and the other to the right of the table. Finally, a test was done to make sure that the subjects were not merely learning to avoid the magnifying lens. In this task, a large grape was placed behind the magnifying lens, and a medium grape was placed behind a non-distorting piece of glass, "so that it appeared the same size that the smaller grape had appeared behind the magnifying lens" (p. 58). In this case, the subject had to choose the magnifying lens instead of avoiding it while

forgoing “the grape that looked the same size as that which had been correct” in the previous trials (p. 58).

All of the subjects were able to succeed at all of the tasks with the size-changing lenses. The subjects performed better than the subjects of a previous experiment (Krachun et al., 2009) which had not included a demonstration for the chimpanzee subjects on how the lenses worked. In that experiment, only five of the fourteen subjects passed the tests. Furthermore, Krachun et al. (2016) argue that it is unlikely that the results could be explained by the subjects learning a reverse contingency rule, such as ‘choose the small grape to get the large grape’ because previous experimental work has demonstrated that chimpanzees perform poorly at tasks that require them to learn these types of rules (Krachun et al., 2009).

Unfortunately, there is limited experimental work on the ability of other nonlinguistic animals to deal with these kinds of experimental set ups, but these results suggest that a grasp of the is/looks distinction is within the abilities of at least some nonlinguistic subjects. In some ways, such a result is hardly surprising, given that many nonlinguistic animals will need to deal with discriminating along the lines of the is/looks distinction in their everyday coping, whether that is the result of light refracting in water or the changes in the lighting conditions throughout the day and environment.[23] The ability to successfully navigate one’s environment despite changes in appearance, backed up by the sort of experimental work discussed above shows that one cannot merely assume that an implicit grasp of the reliability of one’s perceptual beliefs is only available to linguistic participants of the game of giving and asking for reasons. Now, I

[23] Robert Lurz (2011) provides an evolutionary ‘just-so’ argument for a similar claim (see especially pp. 83-95), and then argues that a grasp of the appearance/reality distinction can be used to determine whether nonlinguistic animals are mindreaders or mere behaviour readers. Lurz’s account seems to just assume that nonlinguistic animals have conceptual capabilities (e.g., pp. 36-37), so the arguments in this paper can be regarded as providing justification for that assumption.

admit there has been limited experimental work in this area so far, but I take these results as sufficient for shifting the burden of proof. Sellars and his interpreters seem to mostly just assume that the is/looks distinction is dependent upon linguistic capabilities, but what the experimental results show, more than anything, is the lack of a proper argument for this conclusion.

4. Conclusion

In this paper, I have claimed that there is an argument from a version of Sellars' psychological nominalism to the recognition of nonlinguistic conceptual capabilities. The success of nonlinguistic subjects at RMTS tasks demonstrates that they have an awareness of the relations of same and different. SAME and DIFFERENT are second-order concepts, meaning that they cannot be pictured by the mere arrangement and qualification of names. Therefore, like the concepts of MEANING and REFERENCE, they operate on the meta-level of representational systems. SAME and DIFFERENT operate over predicates, so any being that is able to use them must have the capacity to represent on a second-order level. Since Sellars' psychological nominalism takes capacities that operate at the meta-level to be conceptual capabilities, the success of crows and amazons at RMTS tasks demonstrates that they have conceptual capabilities. Finally, I considered the objection that conceptual capabilities require knowledge, and nonlinguistic animals are incapable of meeting Sellars' conditions for knowledge. In response, I argued that Sellars' account of knowledge only requires that one have an implicit grasp of the is/looks distinction and pointed to work with chimpanzees that suggests that nonlinguistic animals are capable of navigating this type of distinction.

Acknowledgements: I would like to deeply thank Andrew Fenton, Letitia Meynell, Michael Hymers, Simon Gadbois, and Kristin Andrews for their patience, encouragement, and feedback.

Thanks to audiences at PhilLab and the Dalhousie Philosophy Colloquium for their questions and comments on early versions of this paper, with special thanks to Jonathan Philips and Richmond Campbell. In addition, I would like to thank Ross Nelson for reading an earlier version and providing helpful feedback. Thanks to three anonymous reviewers at *Synthese* for providing productive commentary. Finally, thanks to Willem deVries for taking the time to respond to my emails about Sellars and Jumblese.

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