

# Concept Empiricisms, Ancient and Modern<sup>1</sup>

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## 1 Introduction

My topic is concept empiricism and its historical antecedents. Concept empiricism, like all other forms of empiricism, grants a special and central role to experience. But concept empiricism should be distinguished from empiricism in epistemology and philosophy of science, which claim experience has central role in accounting for the justification of our beliefs and the nature of our scientific theories. Concept empiricism, on the other hand, is an empiricist thesis in the philosophy of mind, a thesis which claims that the capacity for thought depends on perception. More specifically, it is a claim about concepts, which are the constituents of thoughts and that in virtue of which thoughts have their content. Concept empiricism claims that all concepts derive in some sense from perceptual experience. The view is well-expressed by the Medieval slogan '*nihil est in intellectu quod non prius fuerit in sensu*'; 'there is nothing in the intellect which was not first in the senses'.

Concept empiricism has a long history. Versions of it seem to have been defended by Aristotle, by a number Medieval philosophers, including Thomas Aquinas and William of Ockham,<sup>2</sup> who typically took themselves to be developing an Aristotelian thesis, and by John Locke, George Berkeley, and David Hume in the Early Modern period. It is also currently enjoying a revival in contemporary psychology and philosophy of mind, most prominently in the work of the philosopher Jesse Prinz and the psychologist Lawrence Barsalou, who defend their version of concept empiricism on both theoretical and empirical grounds.

My focus will be on how these different forms of concept empiricism compare, and how they differ. In particular, I will discuss how the contemporary concept empiricism defended by Prinz and Barsalou—which, following Edouard Machery, I will call 'neo-empiricism'—compares with the kind of concept empiricism we can find in Aristotle. Neo-empiricists often stress how their view differs from its historical antecedents, in particular from Early Modern empiricism. The first difference is that neo-empiricists do not think of concepts in terms of conscious images. The second difference is that neo-empiricism do not motivate their empiricism by appeal to anti-nativism, i.e. scepticism about whether any concepts are innate.

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<sup>2</sup> For a survey, see Gregory W. Dawes, "Ancient and Medieval Empiricism," in *The Stanford Encyclopedia of Philosophy*, ed. E. N. Zalta (Metaphysics Research Lab, Stanford University, 2017, Accessed July 2018).

I shall argue that we can find in Aristotle the seeds of a version of concept empiricism which differs from neo-empiricism in an additional, more drastic way. Aristotelian empiricism and neo-empiricism agree about what I will call a ‘Content Derivation Claim’, a claim that the constituents of thought—concepts—depend on perceptual experience for their content:

**Content Derivation Claim:** All concepts derive their content from the contents of perceptual experience or from operations on the contents of perceptual experience.

To say that the concepts *derive* their content from perceptual experience is to say that the content of concepts—what they are concepts of—is explained, in some way, by reference to the content of perceptual experience. Aristotelian empiricism and neo-empiricism both involve this claim. They disagree, however, about what explains why this claim is true. Neo-empiricists ground the Content Derivation Claim in two theses about *thinking*. Firstly, they claim that the *vehicles* of thought—what thinking is ‘done in’—are perceptual. This claim is often stated in terms of there being no ‘amodal code’ unique to thought, only the various modality-specific codes used by the different senses.<sup>3</sup> Secondly, neo-empiricists claim that thinking is a matter of re-enacting or simulating perceptual representations.<sup>4</sup>

Aristotelian concept empiricism, I will argue, involves neither of these claims about thinking. Aristotle looks like he both denies that thought has perceptual vehicles, and that thinking essentially is a matter of re-enacting perceptual experiences. On Aristotle’s account, the Content Derivation Claim is instead explained because perceptual experience provides representations of particular objects, objects which we then *abstract away from* and represent under a more general aspect in thought. This marks a fundamental difference from neo-empiricism. And this difference is not merely of historical interest. It may allow Aristotelian empiricism to overcome a key problem faced by neo-empiricism. Aristotelian empiricism, because it does not ground the Content Derivation Claim in a thesis about the perceptual nature of thinking, looks like it can give a better account of the role of concepts in reasoning.

I will proceed as follows. In §2, I will outline neo-empiricism and its motivations in more detail. In §3, I will outline Aristotle’s concept empiricism. I will then, in §4, highlight the key difference between Aristotelian and from neo-empiricism. I will then conclude, in §5, by showing how this key difference means Aristotelian empiricism promises to better account for the role of concepts in reasoning.

## 2 Neo-Empiricism

### 2.1 *What is an account of concepts supposed to be an account of?*

Before I outline the neo-empiricist account of concepts—or the Aristotelian alternative—I first need to say what it is supposed to be an account of. We can characterise concepts as the constituents of thoughts. My thought that pigeons are grey contains two concepts, PIGEON and GREY.<sup>5</sup> The fact that this thought features these concepts is part of what makes it the thought that it is. Concepts also, in this way, are what different thoughts have in common, and how they can differ. For example, what

<sup>3</sup> Lawrence W. Barsalou, “Perceptual Symbol Systems,” *Behavioral and Brain Sciences* 22:4 (1999): 578; Jesse J. Prinz, *Furnishing the Mind: Concepts and Their Perceptual Basis* (Cambridge, MA: MIT Press, 2002), 119.

<sup>4</sup> Barsalou, “Perceptual Symbol Systems,” 578, 586; Prinz, *Furnishing the Mind*, 150.

<sup>5</sup> As is customary in the literature, I use SMALL CAPS to refer to concepts.

my thought that pigeons are grey and your thought that pigeons are grey have in common is that they feature the same concepts. On the other hand, my thought that pigeons are funny and your thought that pigeons are sad have one thing in common—they both feature the concept pigeon—though they differ with respects to the other concepts involved.

Characterising concepts in this fashion, as constituents of thoughts, is fairly intuitive. The term ‘concept’, however, should really be thought of as a theoretical term, for something which is supposed to play a variety of explanatory roles in philosophy of mind and psychology, four of which I will outline.

The first phenomenon concepts are claimed to account for—one which is implicit in our initial characterisation of them—is the *intentionality* of thought. Another way of putting this point are is to say that thoughts have *content*, which just is to say that thoughts are *about* or *represent* things, and that concepts play a role in explain what particular thoughts are about.

Second, concepts are claimed to account for the *compositionality* of thought. Compositionality is how the elements of thoughts can be recombined in a rule-governed fashion to make distinct thoughts, like the thought that pigeons are tasty, and complex concepts, like JUVENILE PIGEON. Compositionality, because it provides rules for formulating thoughts, is then often taken to explain two key explananda: the *systematicity* of thought—how the ability to think one thought, say, that John loves Mary, necessarily comes along with the ability to think other thoughts, like the thought that Mary loves John—, and the *productivity* of thought—how creatures like us with finite minds are capable of thinking an indefinite number of new thoughts.<sup>6</sup>

Third, concepts are supposed to underwrite transitions between thoughts through *reasoning* and *inference*. For example, say I infer from my thought that pigeons are birds and my thought that birds lay eggs to the conclusion that pigeons lay eggs. What explains why this inference is possible is the fact that the same concepts—PIGEON, BIRD, EGG—feature in the different thoughts.

Fourth, concepts are supposed to be employed in *categorisation*. What enables me to categorise particular birds as pigeons is supposed to be explained by the fact that I possess the concept PIGEON.

This is a very brief sketch of what concepts are and some of the explanatory roles they play. But it should suffice to illustrate what contemporary philosophers and psychologists mean by the term ‘concept’, and to illustrate what theories of concepts, like neo-empiricism, are supposed to be accounts of.

It should also be noted, however, that some of these explanatory roles are focused on more by philosophers and others are focused on more by psychologists. For example, some philosophers, in particular Jerry Fodor, tend to focus on the role of concepts in explaining intentionality<sup>7</sup> and compositionality,<sup>8</sup> but downplay the importance of categorisation.<sup>9</sup> On the other hand, much of the empirical work on concepts has focused on the role concepts play in categorisation, and Fodor has been criticised for failing to give due weight to this role of concepts.<sup>10</sup>

This has led some to suggest that philosophers and psychologists in fact are talking past one another, and that we should not think that ‘concept’ picks out a natural psychological kind which

<sup>6</sup> See Jerry A. Fodor and Zenon W. Pylyshyn, “Connectionism and Cognitive Architecture: A Critical Analysis,” *Cognition* 28:1 (1988): 33–41.

<sup>7</sup> Jerry A. Fodor, *Concepts: Where Cognitive Science Went Wrong* (Oxford: Oxford University Press, 1998), 7–9.

<sup>8</sup> Fodor and Pylyshyn, “Connectionism and Cognitive Architecture: A Critical Analysis,” 41–46.

<sup>9</sup> Jerry A. Fodor, “Having Concepts: A Brief Refutation of the Twentieth Century,” *Mind & Language* 19, no. 1 (2004): 29–47.

<sup>10</sup> Prinz, *Furnishing the Mind*, 99–100.

plays all of these explanatory roles.<sup>11</sup> I will not consider this possibility seriously in what follows; rather, I will provisionally assume, along with neo-empiricists and some of their critics, that ‘concepts’ picks out a single psychological kind which plays these different roles. That is not to say scepticism should be rejected out of hand, just that if we can provide an account of concepts which allow them to play all these roles, then so much the better.

## 2.2 *Neo-empiricism’s two key theses*

Neo-empiricism is one attempt to say what concepts are, one which its proponents claim explains how concepts play all these roles. Neo-empiricism is succinctly characterised by Machery as involving two key theses:<sup>12</sup>

- (1) Concepts are encoded in perceptual representational systems.
- (2) Conceptual processing is a matter of re-enacting or simulating perceptual states, and manipulating those perceptual states.

I will outline the neo-empiricist account of concepts by unpacking each of these claims in turn.

Thesis (1) is a claim about the *vehicles* of thought—it claims that these vehicles are perceptual—and therefore understanding it requires understanding the commonly-made distinction in the philosophy of mind between a representational *vehicle* and representation *content*.<sup>13</sup> The representational vehicle is what does the *representing*; the representational content is what is *represented*. Different vehicles can have the same content. For example, both a map and a sentence can represent the fact that Gothenburg is north of Copenhagen. The content—what is represented—is in a key respect the same; but the vehicle—what does the representing—is different. It also should be noted, though, that a representational vehicle can refer to different things in different contexts. Sometimes, as in our map/sentence example, it refers to the form or format of the representation.<sup>14</sup> At other times, it refers to the area of the brain responsible for the representation in question.<sup>15</sup>

Neo-empiricists claim that the vehicles of thought are perceptual. This is both a claim about representational format of concepts, and about the areas of the brain involved in concept use. Neo-empiricists assume that the different senses—sight, hearing, smell, etc.—are distinct representational systems. The way in which the senses are distinct representational systems is also unpacked in terms of each of the different senses as involving representations with a modally-specific ‘code’, a code which is specific to the sense in question.<sup>16</sup> They also claim this separation of the senses is reflected at the neurological level, in terms of different brain areas being responsible for the different senses,<sup>17</sup> though I will focus more on the format-orientated characterisation of the senses as involving different codes.

Thesis (1) is the claim that concepts are representations in modally-specific codes. More accurately, neo-empiricists claim that a particular concept involve representations in various different

<sup>11</sup> Edouard Machery, *Doing without Concepts* (Oxford: Oxford University Press, 2011).

<sup>12</sup> Edouard Machery, “Two Dogmas of Neo-Empiricism,” *Philosophy Compass* 1:4 (2006): 388–89.

<sup>13</sup> Daniel C. Dennett, *Consciousness Explained* (New York: Black Bay Books, 1991), 147–48; Ruth Garrett Millikan, “Perceptual Content and Fregean Myth,” *Mind* 100:4 (1991): 439–59.

<sup>14</sup> Tim Crane, *The Mechanical Mind: A Philosophical Introduction to Minds, Machines and Mental Representation*, 2nd ed. (London: Routledge, 2003), 136.

<sup>15</sup> Dennett, *Consciousness Explained*, 131.

<sup>16</sup> Prinz, *Furnishing the Mind*, 117–18.

<sup>17</sup> Barsalou, “Perceptual Symbol Systems,” 582–83.

modally-specific codes.<sup>18</sup> For example, the concept dog will involve both visual representations about how dogs look, and auditory representations about how dogs sound. To deny thesis (1) is to claim that concepts are mental representations which have an ‘amodal code’—a code which is not specific to perceptual systems, but is instead unique to thought, and typically understood to be language-like. There are two ways to defend an amodal code. First, one can deny that there are any modally-specific codes of representations,<sup>19</sup> an option Prinz calls a ‘common code’ theory. Second, one can grant there are modally-specific representations, but claim that there is an additional amodal code unique to thought. This latter option, which Prinz calls a ‘central code’ theory, is the more common way of claiming that concepts are amodal representations.<sup>20</sup>

Neo-empiricists, on the other hand, deny that there is any amodal code of mental representations, whether that be a common code or a central code. This element of neo-empiricism is nicely described by Prinz as the denial that there is a *lingua franca* of the mind.<sup>21</sup>

In order to fully understand this claim, however, we need to specify what makes a code modal or perceptual. Often this is understood in terms of representational format. Perception is often claimed to have an ‘analogue’ format, whereas conceptual representation is claimed to be ‘digital’.<sup>22</sup> Prinz’s answer to this question is that what makes a representation perceptual is that it is produced or used by one of the senses. Prinz understands the senses as ‘dedicated input systems’, i.e. as distinctly specifiable mental systems that respond to their own proprietary input (e.g. wavelengths of light for sight, frequency of molecular motion for hearing).<sup>23</sup> This fits nicely with my focus on neo-empiricism’s historical antecedents, since it has a family resemblance to Aristotle’s way of demarcating the senses in terms of their proper objects.<sup>24</sup> (*de An.* 2.6; see Sorabji 1971). Prinz is more liberal than Aristotle, however, in how many senses there are, including, for example, emotions and kin-aesthetic awareness of one’s own movements as among the senses. (2002, 120–22).<sup>25</sup>

That clarifies what it means to say a representation is perceptual. But given this, what does it mean to say that a given concept is encoded in perceptual representations? Here neo-empiricists appeal to memory. Take my concept DOG. Neo-empiricists claim that my various perceptual experiences of dogs are grouped together in long-term memory. Neo-empiricists appeal to variety of ways in which perceptual representations can be linked in memory, of which I will illustrate with three types of links described by Prinz.<sup>26</sup>

First, there are *binding* links, which link together perceptual representations of something, typically in different senses, as co-instantiated in the same object. For example, the visual

<sup>18</sup> Barsalou, 578; Prinz, *Furnishing the Mind*, 119.

<sup>19</sup> See, e.g., Zenon W. Pylyshyn, “Imagery and Artificial Intelligence,” in *Perception and Cognition: Issues in the Foundations of Psychology*, Minnesota Studies in the Philosophy of Science 9 (Minneapolis: University of Minnesota Press, 1978), 19–55.

<sup>20</sup> See, e.g., Guy Dove, “Beyond Perceptual Symbols: A Call for Representational Pluralism,” *Cognition* 110:3 (2009): 412–31; cf. Jerry A. Fodor, *LOT 2: The Language of Thought Revisited* (Oxford: Oxford University Press, 2008), esp. 169–95.

<sup>21</sup> Prinz, *Furnishing the Mind*, 120.

<sup>22</sup> Barsalou frames the modal/amodal distinction in these terms (1999, 578–79). For defence of this way of distinguishing perceptual and conceptual representations, see (Dretske 1981, 135–53).

<sup>23</sup> Prinz, *Furnishing the Mind*, 115–17.

<sup>24</sup> Aristotle, *de An.* 2.6; see Richard Sorabji, “Aristotle on Demarcating the Five Senses,” *The Philosophical Review* 80:1 (1971): 55–79.

<sup>25</sup> Prinz, *Furnishing the Mind*, 120–22. Prinz defends William James’s view that the emotions are perceptions of bodily states (e.g. facial expressions, hormone levels, etc.), and defends the thesis that emotions are dedicated input systems on this basis. But this is not the only way to understand this thesis; we could also identify the emotions’ proprietary input in *distal* terms, e.g. fear is the perception of danger.

<sup>26</sup> Prinz, *Furnishing the Mind*, 144–48.

representation of a dog as brown and hairy might be bound together with the auditory representation of the sound of its bark. Second, there are *predicative* links where particular determinate perceptual representations are predicated as belonging to more general determinable types. This could be a particular dog, Clifford, or a specific kind of dog, say, the border collie, predicated as belonging to the general category, dogs. Third, there are *situational* links, which relate to what members of a category typically or paradigmatically do. Visual representations of dogs wagging their tails and fetching balls might be examples of such a link. Prinz calls a set of perceptual representations grouped together in these ways a ‘long-term memory network’.<sup>27</sup>

The neo-empiricist claim is that my perceptual representations of dogs are grouped together by these various types of links to form a specific long-term memory network about dogs. While the notion of a long-term memory network is fairly clear, we need to say a bit more about how this links up with how with the role of concepts in thinking. This is where thesis (2) comes in, which states that conceptual processes—the use of concepts in thinking, reasoning, categorisation, etc.—involves re-enacting or simulating perceptual states and manipulating those states.<sup>28</sup> For example, verifying that, say, horses have manes, is supposed to involve, on this picture, simulating perceptual representations of a horse and of a mane, and if the representations match, one judges that horses have manes.<sup>29</sup>

Crucially though, the particular simulated perceptual representation does not provide the entire content of the concept by itself, but through its relation to the relevant long-term memory network. It is a particular perceptual representation that acts as a proxy for the long-term memory network in thought. For example, a border collie representation could act as a proxy in thought for the long-term memory network for DOG. It should be noted that the border collie perceptual representation could, on a different occasion, act as a proxy for the long-term memory network for BORDER COLLIE, MAMMAL or ANIMAL instead; it just depends on which long-term memory network it is hooked up to on a particular occasion.

Because they act as proxies, Prinz coins the term ‘proxytype’ to refer to a representation playing this role.<sup>30</sup> Barsalou’s term is ‘perceptual symbol’, and in the following passage he gives a succinct summary of how these perceptual symbols relate to the collections of perceptual representations in long-term memory:

Once a perceptual state arises, a subset of it is extracted via selective attention and stored permanently in long-term memory. On later retrievals, this perceptual memory can function symbolically, standing for referents in the world, and entering into symbol manipulation. As collections of perceptual symbols develop, they constitute the representations that underlie cognition.<sup>31</sup>

There is a lot more to be said about the neo-empiricist account of concepts and how they figure in thinking. But this brief outline suffices for my purpose, which is to highlight the way in which neo-empiricism grounds the Content Derivation Claim, the claim that all concepts get their content from perceptual experience. Neo-empiricism grounds this claim firstly in the thesis that conceptual thought is carried out in the same vehicles—the same ‘code’—as perceptual representations, and secondly in the thesis that concept use—thinking, categorising, reasoning, etc.—involves re-

<sup>27</sup> Prinz, *Furnishing the Mind*, 144; cf. Barsalou, “Perceptual Symbol Systems,” 586.

<sup>28</sup> Barsalou, “Perceptual Symbol Systems,” 578, 586; Prinz, *Furnishing the Mind*, 150.

<sup>29</sup> The example is from a study by Karen Olseth Solomon and Lawrence W. Barsalou, “Representing Properties Locally,” *Cognitive Psychology* 43:2 (2001): 129–69.

<sup>30</sup> Prinz, *Furnishing the Mind*, 150.

<sup>31</sup> Barsalou, “Perceptual Symbol Systems,” 577–78.

enacting or simulating perceptual representations. This is enough detail to compare neo-empiricism with an alternative way of grounding the Content Derivation Claim which we can find in Aristotle, who neo-empiricists claim gives a historical antecedent of their view. Before moving on to Aristotle, however, we should briefly note a couple of differences which neo-empiricists stress between their view, and the traditional Early Modern concept empiricism put forward by Locke, Berkeley, and Hume.

### 2.3 *Differences to Early Modern concept empiricism*

Neo-empiricists stress two broad kinds of difference between their view and Early Modern Empiricists. The first difference concerns the nature of the perceptual representations; the second difference concerns what motivates the view.

Neo-empiricists claim that that the perceptual representations they appeal to in order to ground concepts are importantly different to those appealed to by the Early Modern empiricists.<sup>32</sup> Specifically, neo-empiricists claim that perceptual representations they appeal to should not be understood as conscious mental images which represent objects by resembling them. Neo-empiricists instead typically claim that perceptual representations represent objects in the external world by standing in a reliable causal relation with them.<sup>33</sup> We should note here that neo-empiricists are not claiming that there are no such things as conscious mental images or that perceptual representations might in some sense resemble what they represent. The key claim is that perceptual representations do not *represent* by resembling objects in the external world. Neo-empiricists claim that this marks a clear differences with the perceptual representations appealed to by Early Modern empiricists.<sup>34</sup>

The fact that neo-empiricists stress these differences between their view and Early Modern might make it a bit obscure what *they* mean for a representation to be modal or perceptual. How can we understand the claim that perceptual representations have a distinctive representational format if we deny they are conscious images that represent by resemblance? The neo-empiricist answer here is that we can identify the distinctive representational format of perceptual representations in a different way, not as something that is given in consciousness, but at a *functional* level, in terms of the distinctive way in which perceptual systems process information.

The second main difference between neo-empiricism and its Early Modern antecedents is its motivations. In particular, neo-empiricists do not appeal to *anti-nativism*—i.e. scepticism about innate knowledge—in support of their view. This differs from, for instance, Locke, whose concept

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<sup>32</sup> Barsalou, “Perceptual Symbol Systems,” 583; Prinz, *Furnishing the Mind*, 143–44.

<sup>33</sup> Prinz, *Furnishing the Mind*, 123–26, 237–61.

<sup>34</sup> Neo-empiricists tend to assume all Early Modern empiricists understood perceptual representations as conscious images. See Barsalou, “Perceptual Symbol Systems,” 578. Prinz is somewhat more cautious: see Prinz, *Furnishing the Mind*, 25–26. There’s reason to doubt this applies across the board. Berkeley and Hume definitely speak of ideas as images, both in relation to perception and thought: see George Berkeley, *A Treatise Concerning The Principles Of Human Knowledge*, ed. Jonathan Dancy (Oxford: Oxford University Press, [1734] 1998), pt. 1, para. 33; David Hume, *A Treatise of Human Nature*, ed. L. A. Selby-Brigge and P. H. Nidditch, 2nd ed. (Oxford: Clarendon Press, [1739-40] 1978), bk. 1, pt. 1, secs. 1, 7. Locke is a trickier case. The traditional view of Locke, at least since Berkeley, holds that he thought of all ideas as imagistic, and some still hold this view of Locke: see Michael Ayers, *Locke. Volume I: Epistemology* (London: Routledge, 1991), chap. 5. However, some Locke scholars deny this, claiming instead that what Locke meant by ‘ideas’ was the “mental contents” of acts of awareness: see John W. Yolton, *Locke and the Compass of Human Understanding: A Selective Commentary on the “Essay”* (Cambridge: Cambridge University Press, 1970), 129; *Perceptual Acquaintance: From Descartes to Reid* (Minneapolis: University of Minnesota Press, 1984), 212–13; cf. David Soles, “Is Locke an Imagist?,” *The Locke Newsletter*:30 (1999): 17–66.

empiricism is directly motivated by his claim that there are no innate principles of knowledge.<sup>35</sup> Neo-empiricists, on the contrary, are happy to countenance innate representations as long as those innate representations are perceptual.<sup>36</sup>

Instead, neo-empiricists motivate their view by arguing that it provides the most parsimonious explanation both of the different roles concepts are supposed to play, and of the empirical data.

The empirical evidence that is offered in support of neo-empiricism typically concerns categorisation tasks. We can briefly illustrate with a couple of studies carried out by Barsalou and his colleagues. One study showed that subjects who had been previously asked to verify that horses have manes were quicker to verify that ponies have manes than to verify that lions do.<sup>37</sup> Neo-empiricism is claimed to explain this finding, because on the neo-empiricist model, thinking about a horse's mane involves simulating perceptual symbol representing a horse's mane. Simulating is claimed to prime the subjects for thinking about a pony's mane, but not a lion's mane, because a horse's mane is visually similar to a pony's mane, but not to a lion's mane. Another study involved feature-listing tasks in which subjects are asked verbally list features of given nouns, for example 'watermelon'. Subjects were more likely to describe internal features, such as red flesh and seeds, when given the complex noun phrase 'half watermelon'.<sup>38</sup> Given that these are visually salient properties, this was claimed to support the neo-empiricist account of thinking as simulating perceptual representations.<sup>39</sup>

The most developed theoretical argument for neo-empiricism is given by Prinz, who argues that a neo-empiricist account of concepts gives the simplest account of how concepts can play a variety of explanatory roles. These explanatory roles, some of which we have already covered, include the role of concepts in accounting for intentionality, compositionality, concept acquisition, and categorisation (2002, 3–16).

While it will distract from my purposes to go into Prinz's argument in detail, I can at least outline its structure. In essence, he argues the all the alternative theories of concepts fail to play at least some of these explanatory roles. Theories of concepts put forward by psychologists often can account for the role concepts play in categorisation—which is natural given that they developed to explain categorisation experiments. But such theories, Prinz claims, fail to explain the role of concepts in accounting for intentionality, because how we categorise things as falling under a certain concept can often be detached from what that concept refers to (2002, 59–60, 86). Theories of concepts developed by philosophers, on the other hand, do better at accounting for intentionality, but often cannot account for the role of concepts in categorisation or give a plausible story about

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<sup>35</sup> John Locke, *An Essay Concerning Human Understanding*, ed. P. H. Nidditch (Oxford: Clarendon Press, [1690] 1975), bk. 1, chs. 2–4.

<sup>36</sup> Prinz, *Furnishing the Mind*, 194.

<sup>37</sup> Solomon and Barsalou, "Representing Properties Locally."

<sup>38</sup> Lawrence W. Barsalou, Karen Olseth Solomon, and Ling Ling Wu, "Perceptual Simulation in Conceptual Tasks," in *Cultural, Typological, and Psychological Perspectives in Cognitive Linguistics: The Proceedings of the 4th Conference of the International Cognitive Linguistics Association*, ed. M. K. Hiraga, C. Sinha, and S. Wilcox, vol. 3 (Amsterdam: John Benjamins, 1999), 209–28.

<sup>39</sup> We should note that studies like these, insofar as they support neo-empiricism, would also support traditional Early Modern empiricism. This is because they justify for the claim that concepts have a perceptual nature, but not necessarily the neo-empiricist version of this claim rather than the traditional imagistic version. The reason neo-empiricists give as to why we should understand conceptual representations as *they* do rather than as conscious images is instead because the imagistic account lacks sufficient representational power. See Prinz, *Furnishing the Mind*, 25–32.



concept acquisition (2002, 94–95, 99–100).<sup>40</sup> Prinz claims that neo-empiricism, on the other hand, can provide an account of concepts which allows them to play all of these explanatory roles; more specifically, Prinz's claim is that neo-empiricism is the *simplest* account of how concepts can play all the explanatory roles we want them to.

An appeal to parsimony is crucial in both of these arguments for neo-empiricism. This is because a denial that there are amodal, non-perceptual representations is not absolutely required to explain the phenomena in question. With regards to Prinz's arguments a defender of amodal representations could simply claim that perceptual representations play the role of determining the content of those amodal representations. This would be a version of what Prinz calls a central code theory, but would allow concepts to play the same explanatory roles as neo-empiricism does. Similarly, the empirical studies do not necessarily show that perceptual representations are the vehicles of thought across the board, as they already look like cases where mental imagery would be useful to carry out the tasks in question.<sup>41</sup> Prinz and Barsalou recognise this. Their key claim is that neo-empiricism is the simplest theory that can explain the relevant phenomena, and that gives us reason to prefer it over the claim that there are amodal representations.<sup>42</sup>

Neo-empiricism differs from Early Modern empiricism, therefore, in these two key ways: in terms of how it understands perceptual representations, and in terms of how it is motivated. But apart from these expressed differences, neo-empiricists typically see themselves as inheritors of a long-standing historical tradition.<sup>43</sup> For example, Prinz claims that the rejection of amodal mental representations—the denial that there is a *lingua franca* of the mind, is an 'important component of traditional empiricism'.<sup>44</sup>

I'm going to dispute this claim. Neo-empiricists, in particular, in their claims about the perceptual character of thought, are better thought of as inheritors of a specific extreme form of empiricism defended by Berkeley and Hume. I shall argue that Aristotle did not defend an empiricism of this form. He was a concept empiricist, but not one who held that the vehicles of thought are perceptual. He is better thought of, in Prinz's terms, as a central code theorist, i.e. he grants that there are distinctive perceptual representations, but he claims that there is an additional amodal kind of representation that is unique to thought.

We should draw a couple of conclusions from this. Firstly, we should recognise that concept empiricism is a broader church than the neo-empiricists think it is. Secondly, a less extreme version of concept empiricism like the kind I will identify in Aristotle also has theoretical benefits. Specifically, it makes concepts more suitable for the role they play in reasoning.

### 3 Aristotelian Empiricism

What Aristotle did not provide a detailed account of concepts, we can find the seeds of a version of concept empiricism in *De Anima* and the *Posterior Analytics*. Aristotle repeatedly stresses the connection between the faculty of intellect (*nous*) and the faculty of perception, a connection which goes via the imagination (*phantasia*). Having introduced *phantasia* and *nous* in *De Anima* 3.3 and

<sup>40</sup> The main philosophical account of concepts Prinz makes this criticism of is Fodor's informational atomism, which claims that concepts are lexical items ('words') in a language of thought, which get their content by standing in the right kind of causal relations with their referents. See Fodor, *Concepts*, 6–15.

<sup>41</sup> Edouard Machery, "Concept Empiricism: A Methodological Critique," *Cognition* 104:1 (2007): 19–46.

<sup>42</sup> Barsalou, "Perceptual Symbol Systems," 580; Prinz, *Furnishing the Mind*, 122–25.

<sup>43</sup> Barsalou, "Perceptual Symbol Systems," 578.

<sup>44</sup> Prinz, *Furnishing the Mind*, 120.

3.4 respectively, Aristotle then discusses the role ‘images’ (*phantasmata*) play in thought. *Phantasmata* are the products of the faculty of *phantasia*, and are characterized as lasting impressions resulting from sense perception.<sup>45</sup> Aristotle claims that the operations of the intellect are dependent on images in a number of ways:

“... the soul never thinks without an image (*phantasmatos*).”<sup>46</sup>

“That which can think ... thinks the forms in images (*en tois phantasmasi*).”<sup>47</sup>

“... unless one perceived one would not learn or understand anything, and when one contemplates one must simultaneously contemplate an image (*phantasma*).”<sup>48</sup>

On Aristotle’s account, humans differ from other animals by having the faculty of intellect (*nous*) which enables higher cognitive abilities, such as thinking (*noein*), learning (*manthanein*), contemplation (*theōrein*), and knowledge or understanding (*epistēmē*). Other animals, Aristotle claims, have perception and imagination (*phantasia*), but not these other states.

However, as the passages quoted above indicate, Aristotle also stresses the *interrelation* between thought and perception. And it is in Aristotle’s discussion of this interrelation where, I suggest, we can find a form of concept empiricism. My focus is to understand the precise nature of this empiricism. In particular, I’m concentrating on whether, like neo-empiricism, it features the claim that the vehicles of thought are perceptual. I’ll argue that Aristotle does not agree with this claim, because it conflicts with key elements of his philosophy of mind. Instead, I think it is better to interpret him as adhering to a different form of empiricism, which does hold that the contents of thoughts depend in some sense on the content of perceptual states, but one which does not claim that the vehicles of thought are perceptual.

In summary, according to this Aristotelian version of empiricism, *noēmata* (‘thoughts’ or ‘concepts’) get their content from *phantasmata* (‘images’), which have the same content *aisthēmata* (‘sense perception’). Forming *noēmata* involves isolating or selecting aspects of perceptual contents and representing them under more a general aspect than perception on its own is able to, an ability which is enabled by the faculty of *nous*. I will outline this Aristotelian concept empiricism in §3.1. I will then briefly discuss, in §3.2, how Aristotle might answer a perennial problem faced by versions of concept empiricism, the question of whether they can account for the full range of concepts we possess. I will then move on to discuss how this Aristotelian empiricism compares with neo-empiricism.

Before I move on, however, I should note that the concept empiricism I will outline is only *part* of Aristotle’s account of intellect—*nous*—and its relation to perception. Concept acquisition and possession, in the sense we have been discussing, is not Aristotle’s main focus when he gives his account of *nous* in *De Anima* 3.4–8. The key function Aristotle outlines for *nous* is grasping intelligible forms or essences.<sup>49</sup> The word ‘*noēsis*’ (‘thinking’) often refers to the mental state of grasping

<sup>45</sup> *de An.* 3.3 428b25–a9.

<sup>46</sup> *de An.* 3.7 431a17, cf. *Mem.* 1 450a1. Translations of Aristotle come from Aristotle, Hamlyn, *De Anima*, except for those from *De Anima*, which come from Aristotle, *De Anima: Books II and III with Passages from Book I*, Revised ed., tr. D. W. Hamlyn (Oxford: Clarendon Press, 1993), and those from the *Posterior Analytics*, which come from Barnes’s later translation, Aristotle, *Posterior Analytics*, 2<sup>nd</sup> ed., tr. J. Barnes (Oxford: Oxford University Press, 1993).

<sup>47</sup> *de An.* 3.7 431b3.

<sup>48</sup> *de An.* 3.8 432a7–10.

<sup>49</sup> *de An.* 3.4 429a13–18, b10–18.

essences, and at times Aristotle also uses ‘*nous*’ just to refer to this mental state.<sup>50</sup> *Nous* in this sense seems to have non-propositional content—it is just directed towards the essence itself, it does not predicate anything of the essence<sup>51</sup>—and to be a mental state which cannot go wrong.<sup>52</sup> As a number of commentators have noted, *nous* in *this* sense is something extremely rarefied, and is something few, if any, of us can ever hope to achieve.<sup>53</sup>

It is clear that having *nous* in this sense is more than mere concept possession. Possessing the concept MAN does not suffice for having *nous* of man—i.e. grasping man’s essence. But I do not think this means that Aristotle’s discussion of the connection between *nous* and perception is irrelevant to my purposes. While *nous* and *noēsis* often refer to the state of grasping essences, *nous* also refers to distinctive psychological faculty. The mental state of grasping essences may be the paradigmatic or central exercise of the faculty, but Aristotle stresses that we can only achieve this state by a step-by-step process starting with perception,<sup>54</sup> and this process also promises to tell us about what ordinary concept possession involves.

Furthermore, in addition to the grasp of essences, Aristotle also claims that the faculty of *nous* enables other higher cognitive capacities which non-human animals lack. Firstly, *nous* enables the capacity for *propositional* thought. Aristotle highlights this when he claims that only *some* kinds of thinking can be true or false; specifically, truth and falsity requires ‘combination’. “Where there is both falsity and truth”, Aristotle claims, “there is already a combination of thoughts (*noēmātōn*) as forming a unity”.<sup>55</sup> The kind of ‘combination of thoughts’ Aristotle is appealing to seems to be *predication* of one thing of another. To illustrate, I might predicate ‘is white’ of ‘Cleon’ when thinking truly, but predicate ‘is not white’ of ‘white’ when thinking falsely.<sup>56</sup> And Aristotle claims that what produces this predication is *nous*: “that which produces a unity in each case is the intellect (*nous*).”<sup>57</sup> The elements which are combined in such acts of thinking are ‘*noēmata*’, often translated as ‘thoughts’,<sup>58</sup> but given that they seem to be sub-propositional elements of thought, it seems equally appropriate to translate them as ‘concepts’.

Secondly, and relatedly, *nous* enables the capacities of *language* and *reasoning*. On Aristotle’s account of language, words are “symbols of affections in the soul”,<sup>59</sup> and the particular ‘affection’ (*pathēma*) he has in mind seems to be thoughts or *noēmata*. Furthermore, Aristotle claims that making an ‘affirmation’ (*kataphasis*)—i.e. to affirm something of something else<sup>60</sup>—involves the very same kind of ‘combination of thoughts’ appealed to in *De Anima*.<sup>61</sup> Likewise, the kind of proposition which figures in logical inferences, on Aristotle’s account, is “a statement affirming or denying something of something”,<sup>62</sup> which must also depend *nous*’s power to combine *noēmata*.

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<sup>50</sup> *APo.* 2.19 100b5–17.

<sup>51</sup> *de An.* 3.6 430b27–29.

<sup>52</sup> *APo.* 2.19 100b6–7.

<sup>53</sup> Michael Frede, “Aristotle’s Rationalism,” in *Rationality in Greek Thought*, ed. Michael Frede and Gisela Striker (Oxford: Clarendon Press, 1996), 162–64; Myles F. Burnyeat, *Aristotle’s Divine Intellect* (Milwaukee: Marquette University Press, 2008), 15–19.

<sup>54</sup> *APo.* 2.19 99b35–100b5.

<sup>55</sup> *de An.* 3.6 430a27–28.

<sup>56</sup> *de An.* 3.6 430b2–5

<sup>57</sup> *de An.* 3.6 430b5–6.

<sup>58</sup> See Aristotle, *De Anima*, tr. Hamlyn; *De Anima*, tr. C. Shields (Oxford: Clarendon Press, 2016).

<sup>59</sup> *Int.* 1 16a4.

<sup>60</sup> *Int.* 1 16a4.

<sup>61</sup> *Int.* 1 16a10–14.

<sup>62</sup> *APr.* 1 24a16–17.

We can see, then, that *nous* enables a range of higher cognitive abilities. For this reason, Aristotle's discussion of *nous* is still relevant to my purposes, even if his main focus is on the mental state of grasping essences. This is because the contents of this mental state, *noēmata*, also serve as the sub-propositional constituents of propositional thought, and thus accounts for reasoning and language. As I outlined above, these are some of the key explanatory roles that concepts are supposed to play. For this reason it does not seem inappropriate to draw an empiricist account of concept possession out of Aristotle's discussion of how intellect depends on perception.

### 3.1 *Aristotle on how thought depends on perception*

I will find an Aristotelian version of concept empiricism in his descriptions of the role played in thought by perception and imagination, the latter of which, according to Aristotle, is part of the perceptual faculty.<sup>63</sup> There seem to be two main ways in which thought depends on perception on Aristotle's account. Firstly, Aristotle claims that perception is implicated in the *genesis* of thoughts, in particular in the genesis of thought *content*, i.e. what thoughts are about. Secondly, Aristotle suggests that perception is implicated in *occurrent* acts of thinking—or more precisely, that stored perceptual images (*phantasmata*) are called upon in occurrent acts of thinking. I will focus on the genetic role, because it is in Aristotle's discussion of the genetic role where we find a kind of concept empiricism.

The first key place where Aristotle stresses the role of perception in the genesis of thought content is in the following passage in *De Anima* 3.8:

Since there is no actual thing which has separate existence, apart from, as it seems, magnitudes which are objects of perception, the objects of thought are included among the forms which are objects of perception, both those that are spoken of as in abstraction and those which are dispositions and affections of objects of perception. And for this reason unless one perceived one would not learn or understand anything, and when one contemplates one must simultaneously contemplate an image; for images are like sense-perceptions, except that they are without matter.<sup>64</sup>

Aristotle here argues from the claim that nothing else exist but perceptible magnitudes to the conclusion that without perception one would not learn or understand anything. But what is important for my purposes is that this argument goes via the claim that the objects of thought (*noēta*)—what we can think about—are among the forms (*eidē*) of the objects of perception (*aisthēta*).

Let us examine the reasoning behind this argument by looking at the following formulation, roughly adapted from the one given by Shields:<sup>65</sup>

- (1) Nothing has a separate existence apart from magnitudes which are objects of perception.
- (2) If (1), then the objects of thought are included among the forms which are objects of perception.
- (3) The objects of thought are included among the forms of objects of perception.
- (4) If (3), then unless one perceived one would not learn or understand anything.
- (5) Unless one perceived one would not learn or understand anything

<sup>63</sup> *Mem.* 1 450a11–14.

<sup>64</sup> *de An.* 3.8 432a3–10.

<sup>65</sup> Christopher Shields, ed., *Aristotle: De Anima* ((Oxford: Clarendon Press, 2016), 344.

It is worth clarifying a couple of points of this argument. Firstly, it should be noted that Aristotle's initial conclusion—(3)—is not the claim that objects of thought and of perception are always the *same*. Aristotle is explicit here that the objects of thought include things *abstracted away* from perception—by which he typically means mathematical entities like numbers and geometrical objects. The claim is just that objects of thought are *forms* of the objects of perception. I take the idea is that while I may perceive a particular triangle, I can also think about its form, i.e. the features it shares with other triangles, and that in virtue of which it counts as a triangle. The form of a triangle is not, I take it, a particular perceivable item. But Aristotle's claim just is that I can think about something imperceptible, like the form of a triangle, only if it is among the *forms* of particular things I perceive.

Secondly, it is not entirely clear what is Aristotle's reasoning behind premises (2) and (4) is, so we, so we have to partially reconstruct it, and we can do so in a couple of different ways.

On the one hand, one might think that premise (2) rests on an assumption that if that there is no world apart from the one we perceive, then we cannot think about anything other than that world which we perceive. Similarly, premise (4) might seem to be based on an assumption that if the objects of thought are the forms of objects of perception, then we must learn about the objects of thought via perception.

But in both of these of cases, we can more plausibly interpret Aristotle as relying on a weaker assumption that if our capacities to *think* and *learn* about things are not to be *mysterious or unexplained*, we had better explain those capacities in terms of the world we perceive and our perception of that world. Our capacity to think about the world *would* be mysterious if we had to explain it in terms of, say, intellectual insight or Platonic recollection. But it would *not* be mysterious if we can explain in terms of perception, as perception is a natural and familiar way of gaining knowledge about the world.<sup>66</sup> This reconstructs Aristotle's argument in *De Anima* 3.8 as one from best explanation, one which concludes that thought and learning is more easily explained by reference to perception and the perceptible features of objects.<sup>67</sup>

This leads us to the second significant passage in which Aristotle discusses the genetic dependence of thought on perception, *Posterior Analytics* 2.19. In this passage, Aristotle asks and answers the question of how one comes to know the 'principles' (*archai*). The principles are primitive items which figure in scientific demonstrations, but are not themselves known by demonstration. Aristotle in the end concludes that the principles are known through a step-by-step process starting with perception and ending with knowledge or understanding (*epistēmē*), a process he calls 'induction' (*epagōgē*). Aristotle explicitly defends this account of learning by appeal to an argument from best explanation. He rejects the alternative account that knowledge of the principles is "present in us without being noticed",<sup>68</sup> and he also claims that this alternative account, which appears to be the Platonic theory of recollection,<sup>69</sup> is "absurd".<sup>70</sup> It is absurd because it entails that we "possess

<sup>66</sup> This is a common Aristotelian refrain. For example, in *De Sensu* he claims the senses "bring in tidings of many distinctive qualities of things, from which knowledge of things both speculative and practical is generated in the soul", *Sens.* 1 437a2–3. Similarly, in *Metaphysics A*, he says that sight "most of all the senses, makes us know and brings to light many differences between things", *Metaph.* 1.1 980a26–27.

<sup>67</sup> Another issue with this argument, raised by both ancient and contemporary commentators (see "Simplicius," *On Aristotle on the Soul* 3.6–13, tr. Carlos Steel (London: Bloomsbury, 2013), 284, 14–125; Shields, *Aristotle: De Anima*, 344–45), is that premise (1)—the claim that nothing has separate existence other than the perceptual magnitudes—is inconsistent with an Aristotelian Prime Mover, who move the cosmos from outside, and being outside the cosmos, would not be in space, *Cael.* 279a16–22. Recharacterising the argument as one from best explanation, one which understands Aristotle as chiefly concerned with providing the simplest explanation of our capacity for thought, makes this less problematic.

<sup>68</sup> *APo.* 2.19 99b26.

<sup>69</sup> The term 'present in us' (*enousai*) is also used by Plato: *Phaedo* 73a; *Meno* 85c.

<sup>70</sup> *APo.* 99b26.

pieces of knowledge more exact than demonstration without its being noticed” (99b27–28). Aristotle then outlines his alternative account, which claims that knowledge of the principles is grounded in perception, through the process of induction.

While it is clear that principles are items that figure in demonstrations, commentators disagree about what else is true of them. Some claim that they are universally generalised propositions—propositions of the form ‘All *As* are *Bs*’—and that Aristotle is suggesting that principles are basic propositions of this form learnt through experience. On the other hand, they sometimes seem to be to basic concepts, as much of Aristotle’s explanation, as we will shortly see, sounds like a description of a process of concept acquisition. However, we need not concern ourselves with a definitive answer as to what ‘principles’ are. This is because on a wide variety of readings, at least one part of Aristotle’s explanation involves outlining how we form general concepts, i.e. abilities to think about, e.g., dogs *in general*.<sup>71</sup>

In any case, Aristotle’s preferred explanation of how we come to know the principles looks empiricist in nature. As I’ve already indicated, it outlines a step-by-step process starting with perception. Perception, Aristotle claims, is a “connate discriminatory capacity” shared by all animals.<sup>72</sup> In some animals, those that have the capacity of memory (*mnēmē*), a sense-perception or percept (*aisthēma*) can be “retained” (*monē*).<sup>73</sup> Then, for an even smaller subset of animals, “from memory (when it occurs often in connection to the same item)” comes “experience (*empeiria*)”.<sup>74</sup> In Aristotle’s usage, ‘experience’ does not refer to what contemporary philosophers typically mean by it—i.e. conscious experience—but rather refers to *being experienced with* an item of a certain kind, e.g. having experience of dogs.<sup>75</sup>

The next and final stage in the explanation is when Aristotle describes what looks like formation of general concepts:

[F]rom experience, or from all the universal that has come to rest in the soul (the one apart from the many, i.e. whatever is one and the same in all these items), there comes a principle of skill

<sup>71</sup> This includes: a) those who claim ‘principles’ just means general concepts (see, e.g., W. D. Ross, ed., *Aristotle’s Prior and Posterior Analytics: A Revised Text with Introduction and Commentary* (Oxford: Oxford University Press, 1949); Richard D. McKirahan, *Principles and Proofs: Aristotle’s Theory of Demonstrative Science* (Princeton, N.J.: Princeton University Press, 1992), 252); b) those who claim Aristotle vacillates between talking about general concepts and universal propositions (see, e.g., Jonathan Barnes, ed., *Aristotle’s Posterior Analytics*, 2<sup>nd</sup> ed. (Oxford: Oxford University Press, 1993); c) those who claim that Aristotle talks about both general concepts and universal propositions, but that there is no vacillation, because to have a concept just is to learn a certain kind of universal proposition (see, e.g., Deborah Modrak, *Aristotle: The Power of Perception* (Chicago: University of Chicago Press, 1987), 162–64; Richard Sorabji, *Animal Minds and Human Morals: The Origins of the Western Debate* (Ithaca, N.Y.: Cornell University Press, 1993), 31–32). Only those who claim Aristotle’s *exclusive* focus is on universalised propositions and explicitly *not* on concept acquisition (e.g. Dominic Scott, *Recollection and Experience: Plato’s Theory of Learning and Its Successors* (Cambridge: Cambridge University Press, 1995), 105–17) will find this passage irrelevant to my purposes.

<sup>72</sup> *APo.* 2.19 99b35–36.

<sup>73</sup> *APo.* 99b37; 100a3. While Aristotle here calls this capacity memory (*mnēmē*), it seems more appropriately thought of as imagination (*phantasia*), the general capacity to retain sense-impressions, much like the contemporary psychological notion of long-term memory. For Aristotle, however, memory strictly so-called, is always of the past: *Mem.* 1 449a9–b24. This means that although memory involves *phantasia* (see *de An.* 450a13), *phantasia* does not always involve memory, because we can have *phantasmata* which are not of the past, such as in perceptual illusions: *de An.* 3.3 428b3–5. The current context—of retained sense-impressions in learning—likewise does not seem to involve representation of the past.

<sup>74</sup> *APo.* 100a4–5

<sup>75</sup> Aristotle’s ‘experience’ therefore has more in common with ‘experience of working with children’ than with ‘visual experience’. For an in-depth account of Aristotle’s notion of experience, one which highlights this feature, see Pavel Gregorić and Filip Grgić, “Aristotle’s Notion of Experience,” *Archiv Für Geschichte Der Philosophie* 88:1 (2006): 1–30.

(*technē*) or understanding (*epistēmē*)—of skill if it deals with how things come about, of understanding if it deals with how things are. (*APo.* 2.19 100a6–10)

Aristotle also describes this final stage as involving the formation of an ‘account’ (*logos*) (100a2–3), an account which is based on the retention of the sense-perceptions he has just mentioned.

As a whole, this description claims that we come to a particular basic and foundational kind of knowledge by, in empiricist fashion, repeatedly perceiving things of a certain kind. It will be easier to understand Aristotle’s account here if we illustrate it with an example. The idea seems to be that someone first perceives, say, a number of distinct dogs—this dog, that dog, etc. The person then holds these perceptual representations of dogs in her memory, until she counts as having experience of dogs. At this stage she has a generalised representation, i.e. not just a representations of *this dog*, a representation of *that dog*, but a representation of *dogs*. And from this, she comes to have an understanding (*epistēmē*) or an account (*logos*) of dogs. I take this to essentially to be a process of abstracting away from how particular dogs differ and recognising what they all have in common, in a way that allows one to reason about dogs *in general*, e.g. by having the concept DOG figure in scientific demonstrations.<sup>76</sup> In this way, I understand Aristotle’s induction (*epagōgē*) to describe, at least in part, how basic general concepts emerge from repeated perception of things that fall under those concepts. And the key reason Aristotle gives in support of this account, as far as I can see, is that it explains how we form these concepts better than the alternatives.

These two passages can therefore be understood as giving arguments from best explanation for an empiricist account of concept acquisition. In §4, I will discuss how this version of concept empiricism compares with neo-empiricism. Before I do that, however, I’d like to briefly discuss how well this version of empiricism can account for the full *scope* of our concepts we have. Empiricist accounts of concept possession face perennial problems accounting for the full range of our concepts. Examples of concepts empiricists traditionally have trouble dealing with are ethical and mathematical concepts.<sup>77</sup> For this reason, examining what resources Aristotle has at this disposal to answer this question will allow us to more fully understand this Aristotelian version of concept empiricism, and assess its plausibility.

### 3.2 *Aristotelian empiricism and the question of scope*

Aristotle does not at any point provide a detailed answer to this question of scope, i.e. an explanation of how the process of induction can account for the full range of concepts we have. However, I think we can provide the beginnings of an answer on Aristotle’s behalf. In particular, I’m going to focus on three elements in Aristotle’s philosophy of mind that could be appealed to in order to answer the question of scope: a) the scope of perceptual content; b) the distinctive generality of conceptual representation; c) some of the examples of the concepts Aristotle claims we by induction.

Let us start with the scope of perceptual content. If the scope of what we can perceive is very narrow, then the concept empiricism Aristotle defends clearly will not provide a good explanation of the full range of concepts we have. However, there is reason to suggest that Aristotle’s thinks the content of perception can be quite rich. Aristotle outlines three different kinds of perceptible

<sup>76</sup> I’ve given what Barnes calls an ‘honest empiricist’ reading of 2.19, and ignored what he calls an ‘easy rationalist’ reading (see Barnes, ed., *Aristotle: Posterior Analytics*, 259), i.e. an interpretation which claims that *nous*, also plays an essential role alongside induction in how we come to know the principles (see, e.g., Terence Irwin, *Aristotle’s First Principles* (Oxford: Clarendon Press, 1988), 134–36). Though I cannot argue for this here, I find Barnes’ interpretation more plausible, according to which, ‘*nous*’ is just the right word for the mental state which grasps the principles.

<sup>77</sup> For further examples, see Prinz, *Furnishing the Mind*, 25–32.

objects. The first two are those perceived “in themselves” or “in their own right” (*kath’auto*).<sup>78</sup> The first are the “proper” or “special” (*idion*) perceptible objects—colour, sound, flavour, and so forth—each of which is perceived by a single sense.<sup>79</sup> The second are the “common” perceptible objects—movement, rest, number, unity, figure, size—which can be perceived by a number of senses.<sup>80</sup> The third kind of perceptible objects are not perceived in themselves, but “incidentally” or “extrinsically” (*kata sumbebēkos*). Aristotle’s example is when one perceives the son of Diares, by perceiving “a white thing” (the proper perceptible object in this case) which happens to be the son of Diares.<sup>81</sup>

Aristotle’s official account of perception given in *de Anima* 2.4–2.12 largely focuses on the proper perceptible objects, but this shouldn’t mislead us into thinking that common and incidental perception are unimportant. Aristotle seems to claim that a wide variety of objects may be perceived incidentally, and he never suggests that incidental perception is not a genuine form of perception.<sup>82</sup> Key examples are given by Aristotle’s claims about the perception of animals. This is because animals, on Aristotle’s account, have perception but lack intellect,<sup>83</sup> so any claims about what they can perceive cannot derive from the higher cognitive abilities which require the intellect. Aristotle describes a lion hunting an ox who “perceived by the lowing that it was near”, and dogs hunting hares for whom “the scent of hares told them hares were there”.<sup>84</sup> These objects of perception—hares and oxen—clearly do not fall under any of the categories of proper or common perceptible objects, so they must be incidentally perceived.<sup>85</sup> Therefore, on Aristotle’s account, not only can we perceive colours, sounds, and shapes, we can also perceive things like men, hares, and oxen.

Furthermore, it also seems that on Aristotle’s account, perceiving something—a man or an ox—already involves perceiving it *as* a certain type of thing. In other words, Aristotle seems to suggest that perception represents a particular as falling under a certain universal type. This interpretation is suggested by Jonathan Barnes,<sup>86</sup> and developed in detail by Victor Caston.<sup>87</sup> It is suggested by a claim which comes after the passage from *Posterior Analytics* 2.19 which I’ve already discussed, in which Aristotle claims that “although you perceive particulars, perception is of universals,—e.g. of man, not of Callias the man”.<sup>88</sup> This claim seems to play the role of explaining how perception—which Aristotle claims is necessarily of particulars<sup>89</sup>—can provide the raw materials for the process of forming general concepts that we outlined above. As Barnes puts it, Aristotle is answering the question: “how can the gap between universals and particulars be jumped?” Aristotle’s answer, according to Barnes, is that:

[P]erception gives us universals from the start. ... He means that we perceive things *as* As; and that this, so to speak lodges the universal, *A*, in our minds from the start ... (It should be noted that this

<sup>78</sup> *de An.* 2.6 418a9–10.

<sup>79</sup> *de An.* 2.6 418a11–17.

<sup>80</sup> *de An.* 2.6 418a18–20.

<sup>81</sup> *de An.* 2.6 481a21–24.

<sup>82</sup> Stanford Cashdollar, “Aristotle’s Account of Incidental Perception,” *Phronesis* 18:2 (1973): 158–59.

<sup>83</sup> *de An.* 3.3 427b14–15.

<sup>84</sup> *EN* 3.10 1118a18–21.

<sup>85</sup> Further examples are given by Gregorić and Grgić, “Aristotle’s Notion of Experience,” 12, fn. 28, who point to claims in the *Historia Animalium* “which force us to assume that non-rational animals have incidental perception: e.g. “when the Egyptian ichneumon sees the snake called the asp, it does not attack until it has summoned others to help”, *HA* 612a16–17, the cranes are said to “see the clouds and bad weather”, *HA* 614b21, and the lion is “watching for the man who is shooting and then attacks him”, *HA* 629b24.

<sup>86</sup> Barnes, ed., *Aristotle: Posterior Analytics*, 266.

<sup>87</sup> Victor Caston, “Aristotle on Perceptual Content” (Manuscript under review, n.d.).

<sup>88</sup> *APo.* 2.19 100a16–b1.

<sup>89</sup> *APo.* 1.31 87b29–31.



account is intended to hold for *all* perceivers: it is not particular to human perception, nor does it involve the intellect in any way. Even a fly sees an *F*.)<sup>90</sup>

Perception, on this interpretation of Aristotle's account, represents particulars *as* certain types of things.<sup>91</sup> If we combine this with the range of objects Aristotle claims we can perceive, this means we can perceive things as, *inter alia*, red, loud, and bitter (proper), as round, large, or approaching (common), and as men, hares, or oxen (incidental). Perceptual content, on Aristotle's account, can thus be very rich. And with such a rich conception of perceptual content, Aristotle's claim that our concepts in the end derive from perception looks begins to look more plausible.<sup>92</sup>

We can now move on to the second aspect of Aristotle's philosophy of mind we can appeal to answer the question of scope. This second aspect the distinctive representational powers the intellect adds to the content of perception. Specifically, the intellect seems to add the capacity to represent *generality*. This is already evident in the process of induction (*epagōgē*) outlined above, the process of forming basic concepts by a step-by-step process starting with perception. This process already involves isolating aspects of perceptual content and representing them under a more general aspect than perception on its own can do.

The fact that intellect gives us a distinctive capacity to represent generality shows up in Aristotle's explanation of why perception on its own does not suffice for *epistēmē*, i.e. knowledge or understanding. Although Aristotle claims that knowledge is grounded in perception in the way I outlined earlier, he claims that perception on its own cannot *suffice* for knowledge. The key reason for this seems to be that perception is necessarily of a particular, even if perception represents that particular as a kind of thing: "Even if perception is of what is such-and-and-such ... nevertheless what you perceive must be a this so-and-so at a place and at a time".<sup>93</sup> This means perception cannot suffice for knowledge, because we have knowledge, Aristotle claims "in so far as we get to know universals",<sup>94</sup> i.e. in so far as we understand "what is found always and everywhere".<sup>95</sup>

Caston, in the course of integrating Aristotle's epistemology with the account of perceptual content discussed above, suggests that these passages give us the essential difference, on Aristotle's account, between perceptual and conceptual mental representation. The problem that seems to be raised by these passages is that knowledge looks like it requires a kind of generic representation of *kinds* or *types as such*—e.g. a representation not just of *this dog, that dog*, etc., but of *dogs in general*. Perception, since it is of particulars, cannot provide this kind of general representation. This is the case even if we accept Barnes' interpretation that perception involves representing things as general types. This is because perception still only represents a particular as falling under a certain type, e.g.

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<sup>90</sup> Barnes, ed., *Aristotle: Posterior Analytics*, 266.

<sup>91</sup> For further argument for this interpretation, see Caston, "Aristotle on Perceptual Content," esp. secs. 3–6.

<sup>92</sup> To illustrate, in *Posterior Analytics* 2.19, Aristotle's example of a basic concept gained by induction is the concept MAN. Barnes suggests this choice of example is "unfortunate". This is because a man plausibly is not a proper or common perceptible object, but only an incidental perceptible one. This means, Barnes claims, that it cannot be the case that MAN is "directly implanted in the mind by the senses", Barnes, ed., *Aristotle: Posterior Analytics*, 266. But if incidental perception is a genuine form of perception—and we genuinely can perceive things like men, oxen, and hares—I do not think this is a problem. Of course, it is a philosophical interesting question as to how we perceive things like men, oxen, and hares. But it is *prima facie* plausible that we do (see, e.g., P. F. Strawson, "Perception and Its Objects," in *Perception and Identity: Essays Presented to A. J. Ayer with His Replies to Them*, ed. G. F. Macdonald (London: Macmillan, 1979), 43–44. And if we do, then grounding our concepts in perception looks more plausible.

<sup>93</sup> *APo.* 1.31 87b29–31.

<sup>94</sup> *APo.* 87b39.

<sup>95</sup> *APo.* 87b33.

I can perceive *that dog*, but I cannot perceive *dogs in general*. Representing a general type, such as dogs in general, requires a distinctive and essentially generic mental representation.

Caston identifies concept possession, on Aristotle's account, with the capacity for this kind of generic mental representation required for knowledge. Concept possession, on Caston's interpretation of Aristotle, is essentially tied to the ability to grasp and make *generalisations*.<sup>96</sup> An essential part of this ability is the capacity to represent *types* or *kinds* themselves, i.e. not just as predicates (e.g. *That's a dog*) but as subjects of predication (e.g. *Dogs are mammals*).<sup>97</sup>

If Caston's interpretation is correct here, gaining a basic concept from perception (as described in *Posterior Analytics* 2.19), involves gaining the ability to represent the *types* or *kinds* of perceptible objects. But although this is mental representation of a fundamentally different kind than perception, it is still grounded in perception—as the kinds that one represents conceptually derive from the kinds that one perceives things as.<sup>98</sup>

This again contributes to an answer the question of scope. Concepts of general kinds have often claimed to be problematic for concept empiricism, as we do not have perceptual experiences with the requisite generality. For example, no perceptual experience of a triangle can represent triangles *in general*, as perceptual experiences of triangles will always be of equilateral, isosceles, or scalene triangles.<sup>99</sup> This Aristotelian version of empiricism, however, promises to give a more plausible account of how we form general concepts, given that it claims the intellect adds a distinctive ability to represent what is given in perception under a more general aspect. I will return to this feature later, as I think it marks a key difference and advantage Aristotelian empiricism has when compared to other forms of concept empiricism.

The third and final point that Aristotle can make in response to the question of scope is simply to refer to some of the examples of concepts gained through the process of induction which Aristotle discusses. The process of induction, given that it simply involves forming a general concept on the basis of commonalities in perception, might look limited. But looking at a couple of Aristotle's examples of the concepts, can I think us make us more optimistic about the explanatory power of Aristotelian induction.

We can firstly see this if we focus on Aristotle description of how we can formulate more and more general concepts via induction. I take it that this is what Aristotle suggests in *Posterior Analytics* 2.19 after the passage I discussed above, when he describes a process of gaining knowledge of successively more general concepts with a simile of a routed army becoming organised and coming to a "stand" or "stop" (*stantos*):

When one of the undifferentiated items makes a stand, there is a primitive universal in the soul ...  
Next a stand is made among these items, until something partless and universal makes a stand. E.g.

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<sup>96</sup> Caston, "Aristotle on Perceptual Content," 49.

<sup>97</sup> Caston, "Aristotle on Perceptual Content," 50.

<sup>98</sup> I think we can find further support for Caston's interpretation if we look at the language of the first passage I discussed in which Aristotle outlined his concept empiricism, *De Anima* 3.8. In that passage, Aristotle did not simply identify the objects of thought (*ta noēta*) with the objects of perception (*ta aithēta*). Instead, he claimed that the objects of thought are "among the forms of the objects of perception" (*en tois eidesi tois aisthētois ta noēta esti*), *de An.* 3.8 432a5–6. The claim that the objects of thought are *forms* of perceptible objects makes complete sense if, with Caston, we hold that thinking (*noein*) involves mental representations of general kinds or types, because that is just what something's form (*eidos*) is, it is the kind or type of thing it is.

<sup>99</sup> The *locus classicus* for this objection is Berkeley's criticism of Locke's theory of 'abstract ideas' (see fn. ?? below).

such-and-such an animal makes a stand until animal does; and with animal a stand is made in the same way.<sup>100</sup>

I take it that in this passage, Aristotle is claiming that the process of induction can operate at different degrees of generality. At one end, I could perceive things as men, hares, and oxen, and then, through the step-by-step process discussed above, form the general concepts MAN, HARE, and OX. At a greater degree of generality, I can also recognise what all of these have in common—i.e. perceive them as animals—and then form the more general concept ANIMAL. And presumably we will be able to say the same about even more general concepts, such as the concept BEING. In this way, Aristotelian induction, because it can operate at greater or lesser degrees of generality, can provide us with more concepts that it might initially seem.

The second example in which Aristotelian induction provides more than one might expect is the case of mathematical concepts. Here Aristotle's philosophy of mind links up with his philosophy of mathematics, as he gives an empiricist-friendly account of mathematical objects. He claims that mathematics does not study mathematical objects that are separate from perceptible objects. Rather, it studies perceptible objects in a way that ignores their features irrelevant to their mathematical properties. In this way, arithmetic studies perceptible objects insofar as they are indivisible (and thus countable); geometry studies perceptible objects insofar as they have magnitudes:

Each question will be best investigated in this way—by supposing separate what is not separate, as the arithmetician and the geometer do. For a man *qua* man is one indivisible thing; and the arithmetician supposes one indivisible thing, and then considers whether any attribute belongs to man *qua* indivisible. But the geometer treats him neither *qua* man nor *qua* indivisible, but as a solid.<sup>101</sup>

Because of this account of mathematical objects, Aristotle typically refers to mathematical entities like numbers and the objects of geometry under the heading of 'things spoken of as in abstraction' (*ta en aphairesei legomena*). And when we turn to his philosophy of mind, we see that this account of mathematical objects means we have an empiricist-friendly story about how we are able to think of them, and form mathematical concepts: we think about the mathematical properties of perceptible objects *as if they were separate* when in fact they are not. Aristotle illustrates this in the following passage:

Those things which are spoken of as in abstraction one thinks of just as, if one thought actually of the snub, not *qua* snub, but separately *qua* hollow, one would think of it apart from the flesh in which the hollow exists—one thinks of mathematical entities which are not separate, as separate, when one thinks of them.<sup>102</sup>

Aristotle illustrates here with the example of 'the snub'. The snub is not separable from flesh (as it is specifically concavity of the nose), but we can still study a feature of it, its concavity, as if that feature were separate. And while this is an example of a geometrical property, Aristotle thinks the same process is involved in thinking about numbers too. Thinking about numbers involves thinking about perceptible objects insofar as they are indivisible, and thus countable.

What this means is that given Aristotle's philosophy of mathematics, mathematical concepts raise no special problem for an Aristotelian concept empiricism. We can just say that such concepts

<sup>100</sup> *APo.* 2.19 100a16–100b3.

<sup>101</sup> *Metaph.* 13.3 1078a22–26.

<sup>102</sup> *de An.* 3.7 431b12–17.

are formed by the very same process of induction, i.e. through the recognition of commonalities between different objects given in perception. It is just that in this case, the particular commonalities recognised will be mathematical ones; presumably, sameness in shape or magnitude for geometrical properties, and sameness in numerosity for arithmetical properties. In fact, Aristotle explicitly says that induction can also provide us with mathematical concepts. He claims that “even the items we speak about on the basis of abstraction can be made familiar by induction”,<sup>103</sup> because they are concepts that derive from thinking about perceptible objects in a particularly focused way.<sup>104</sup> In this way, one key problematic set of concepts for empiricists—mathematical concepts—is one which Aristotelian empiricism can account for.

In summary, therefore, Aristotle has a variety of different materials available to him to answer the question of how his concept empiricism can account for the full scope of concepts we have. Firstly, he can appeal to the richness of his account of perceptual content. Secondly, he can appeal to the way in which the intellect builds on the content of perception both by representing kinds *as such*, and by induction providing us with *more general* and *abstract* concepts. And while I do not think what I've said provides a complete answer to the problem of scope, I think it provides a plausible starting point.<sup>105</sup>

#### 4 How Aristotelian empiricism compares with neo-empiricism

We can now move on to consider how this Aristotelian concept empiricism compares with neo-empiricism. While there may be some similarities,<sup>106</sup> I'm going to concentrate on how they differ. In particular, I will argue that Aristotle's empiricism does not share the two key theses of neo-empiricism. These were:

- (1) Concepts are encoded in perceptual representational systems.

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<sup>103</sup> *APo.* 1.18 81a2–3.

<sup>104</sup> *APo.* 1.18 81a4–5.

<sup>105</sup> I do not claim these to be only examples of concepts traditionally problematic for empiricists which Aristotelian induction can account for. Another key case, which I do not have space to discuss, is ethical concepts, though Jessica Moss has argued that Aristotle holds that ethical concepts are grounded in a practical analogue of induction, Jessica Moss, *Aristotle on the Apparent Good: Perception, Phantasia, Thought, and Desire* (Oxford: Oxford University Press, 2012), esp. 200–233. On this picture, one forms ethical concepts through habituation, which involves a series of pleasurable or painful experiences, where such experiences are a way of perceiving a course of action as good or bad. Forming an ethical concept, on this picture, essentially involves the same kind of recognition of perceived commonalities as takes place in theoretical induction. If such a picture is plausible, Aristotelian induction will likewise be able to account for ethical concepts.

<sup>106</sup> One way in which there may be a similarity between Aristotelian empiricism and neo-empiricism is in the nature of the perceptual representations appealed to. But it depends on how we understand *phantasmata*, the retained perceptual representations Aristotle appeals to. Some interpret *phantasmata* as pictorial mental images, which can be consciously attended to (see, e.g., Richard Sorabji, ed., *Aristotle on Memory*, 2nd ed. (London: Duckworth, 2004), xiv–xix, 2–8). If this is correct, Aristotle's empiricism more closely resembles the empiricism of Berkeley and Hume. Other interpreters instead claim that a *phantasma* is in its essence a content-bearing persisting state with the same content as a perceptual experience, but a state which is not necessarily itself an object of awareness (see, e.g., Michael E. Wedin, *Mind and Imagination in Aristotle* (New Haven: Yale University Press, 1988), 25–30, 39–45; Julia Annas, “Aristotle on Memory and Self,” in *Essays on Aristotle's De Anima*, ed. Martha Craven Nussbaum and Amélie Oksenberg Rorty (Oxford: Clarendon Press, 1992), 304–5; Victor Caston, “Why Aristotle Needs Imagination,” *Phronesis* 41:1 (1996): 51–52) If the latter interpretation is correct, Aristotle's view more closely resembles neo-empiricism, because neo-empiricists, as I've said, typically stress that the perceptual representations they appeal to are not imagistic.

- (2) Conceptual processing is a matter of re-enacting or simulating perceptual states, and manipulating those perceptual states.

I will concentrate thesis (1), which is a claim about the ‘vehicles’ of thought. In any case, (1) is the really crucial element of neo-empiricism. If thesis (1) is false—if thought does not have perceptual vehicles—then thesis (2) will not be true—i.e. thinking will not *essentially* involve simulating perceptual states. So if Aristotle thinks that (1) is false, as I think he does, he will not think (2) is true in the strong sense which neo-empiricists do.

Recall that the claim that the vehicles of thought are perceptual can be understood *physiologically*—i.e. as the claim that the brain areas responsible for thought are those responsible for perception—or as a claim about representational *format*—i.e. that conceptual representations share the same format as perceptual representations. Neo-empiricists tend to claim that the vehicles of conceptual representations are perceptual in both of these two senses.

Does Aristotle think the vehicles of thought are perceptual in either of these senses? Let us start with the physiological understanding of vehicles. Aristotle clearly does not think that thought has perceptual vehicles in *that* sense. This is because he holds that the intellect does not have an organ.<sup>107</sup> He holds this view because the range of the intelligible is greater than what can be perceived. Our senses, he claims, are “not capable of perceiving when the object of perception has been too intense”<sup>108</sup> whereas the intellect is unlimited in what it is able to think about, which leads him to conclude that the intellect is “unmixed with the body” (429a19). If the intellect is unmixed with the body, thought cannot take place in the perceptual systems understood physiologically.

Aristotle’s claim that the intellect is unmixed from the body is, admittedly, somewhat idiosyncratic, and so we should not focus too much on the physiological understanding of vehicles. I will instead focus on the question of whether, on Aristotle’s account, thought and perception share the same representational *format*.<sup>109</sup>

As I said earlier, representations that differ in format can have the same content. This is typically illustrated by examples, e.g. a map and a sentence can both represent that Gothenburg is north of Copenhagen, but they each use a different format. With this in mind, thesis (1) of neo-empiricism was explicated in terms of the different senses being perceptual systems that use, in Prinz’s terms, their own proprietary format or ‘modal codes’. Neo-empiricism claims that thought is carried out in the various different codes of the different senses. Neo-empiricism claims that thought has no proprietary amodal code, whether that be a ‘common code’—i.e. one used by both the senses and thought—or a ‘central code’—i.e. a code specific to thought which the codes of the different senses are translated into. Prinz phrases this, recall, as the idea that there is no *lingua franca* of the mind.

Aristotle, I will argue, disagrees with neo-empiricism here. He is best interpreted as holding that there is a representational code or format that is unique to thought, though he would not deny that this differs from the representational format of perceptual representations. He is therefore best understood, in Prinz’s terms, as a ‘central code’ theorist. Aristotle’s account still deserves, however, to be thought of as a version of concept empiricism, because it involves the claim that all concepts

<sup>107</sup> *de An.* 3.4 429a23–25.

<sup>108</sup> *de An.* 3.4 429b1–2.

<sup>109</sup> One might worry that it is anachronistic to ask this question about Aristotle’s philosophy of mind, since it presupposes the contemporary vehicle/content distinction. However, there is reason to think Aristotle recognises such a distinction. In particular, in *De Memoria*, Aristotle distinguishes between contemplating “a picture painted on a panel” both “as a picture” (*hōs zōion*) and “as a likeness” (*hōs eikona*), *Mem.* 1 450b24, which clearly seems to suggest the vehicle/content distinction.

get their content from perception or from operations on perceptual content—what I referred to as the Content Derivation Claim.

An account like this—i.e. a version of concept empiricism that denies the vehicles of thought are perceptual—might seem as though it is not a genuine option. One might be puzzled as to how it really counts as a version of concept empiricism. So before I outline why we should view Aristotle in this way, I will further explicate the view by reference to different versions of Early Modern empiricism. In the Early Modern period Berkeley and Hume seem to agree with the neo-empiricist claim that the vehicles of thought are perceptual. Locke, on the other hand, did not, but still nevertheless defended a form of concept empiricism.

Berkeley and Hume certainly did hold that that thought has the same representational format as perception. This is evident in Hume's claim that ideas are "faint images" of impressions "in thinking and reasoning",<sup>110</sup> and in Berkeley's claim that "it impossible for me to conceive in my thoughts any sensible thing or object distinct from the sensation or perception of it."<sup>111</sup>

The key difference between them and Locke shows up in the different ways in which they treat abstract ideas, i.e. thoughts about *general* kinds of things. Berkeley and Hume, like neo-empiricists, claim that abstract thought uses particular perceptual representations as proxies for collections of perceptual representations:

[A]n idea, which considered in itself is particular, becomes general, by being made to represent or stand for all other particular ideas of the same sort. (Berkeley [1734] 1998, Introduction, para. 12).

Abstract ideas are therefore in themselves individual, however they may become general in their representation. The image in the mind is only that of a particular object, tho' the application of it in our reasoning be the same as if it were universal. (Hume [1739] 1978, bk. 1, pt. 1, sec. 7)

Locke, on the other hand, did not hold that abstract thought involves a particular perceptual representation acting as a proxy for collections of perceptual representations. This is evident if we look at Locke's description of someone forming the abstract idea of *Man*:

[T]hey make nothing new, but only leave out of the complex *Idea* they had of *Peter* and *James*, *Mary* and *Jane*, that which is peculiar to each, and retain only what is common to all. (Locke [1690] 1975, bk. 3, pt. 3, sec. 7)

It is most natural to understand Locke here as claiming that abstraction creates a mental representation which is fundamentally different *in kind* from the particular ideas it derives from. An abstract idea, on Locke's account, seems to be a new kind of mental representation, an essentially general one, created by a process of selectively attending to aspects of particular ideas and retaining 'only what it common to all'. A key reason for interpreting Locke in this way, given by David Soles, is that it takes seriously and at face value his language of abstraction 'leaving out' the irrelevant details of particular ideas (Soles 1999, 49).<sup>112</sup>

<sup>110</sup> Hume, *Treatise*, bk. 1, pt. 1, sec. 1.

<sup>111</sup> Berkeley, *Principles Of Human Knowledge*, pt. 1, para. 5.

<sup>112</sup> Soles, "Is Locke an Imagist?," 49. This reading also allows us to be charitable about Locke description of the "*general Idea of a Triangle*" as "neither Oblique, nor Rectangle, neither Equilateral, Equicrural, Nor Scalenon; but all and none of these at once. In effect, it is something imperfect, that cannot exist, an idea wherein some parts of several different and inconsistent *Ideas* are put together", Locke, *Essay*, pt. 7, sec. 9. As David Soles points out, if abstraction creates a new kind of general representation, these claims make sense: Soles, "Is Locke an Imagist?," 50. This reading also undermines Berkeley's criticism of this passage, in which he claims that that is impossible to imagine such a triangle: Berkeley, *Principles Of Human Knowledge*, paras. 13, 16.

If this reading is correct, abstract ideas look like they have a different representational format from perceptual content, as the generic abstract content is something which perception is not the right kind of thing to provide. This does not mean, however, that Locke cannot still be a concept empiricist. Locke will still count as defending the Content Derivation Claim as long as abstract ideas are only ever produced by selectively attending to features of particular ideas resulting from perception (which I take it is what Locke is suggesting when he says that those who form abstract ideas ‘make nothing new’).

There is, therefore, a form of concept empiricism which does not claim that the vehicles of thought are perceptual. Locke held such a view, and I suggest that Aristotle did also. The reasons for interpreting Aristotle in this way are partly textual and partly philosophical.

The textual reason for interpreting Aristotle like this is because he explicitly distinguishes what he calls ‘first thoughts’ (*prōta noēmata*) from ‘images’ (*phantasmata*), the retained sense-perceptions on which our concepts are ultimately derived. First thoughts, *prōta noēmata*, seem to be basic thoughts or concepts which are not ‘combined’ with any other concepts, and it is natural to think that Aristotle might be referring to the basic concepts that result from induction.<sup>113</sup> About first thoughts, Aristotle asks:

[W]hat distinguishes first thoughts (*prōta noēmata*) from images? Surely neither these nor any other thoughts will be images, but they will not exist without images.<sup>114</sup>

Aristotle here explicitly claims that all thoughts—including first thoughts—are not images (*phantasmata*). It would be hard to see how to interpret this claim if Aristotle agreed with Berkeley, Hume and the neo-empiricists that thoughts have perceptual vehicles. It is much easier to understand if one agrees with Locke that thought involves a kind of representation which perception itself cannot provide. Aristotle does admit that first thoughts will not exist without images, though this is easy to understand if we understand Aristotle as I’m suggesting, because he still holds that all thoughts get their content from perception (via the process of induction).

The philosophical reason for this interpretation can be found in the reasons Aristotle gives for thinking that perception cannot suffice for knowledge. Aristotle thinks that perception, because it is necessarily of particulars, cannot represent the generality sufficient for knowledge, on Aristotle’s conception of it, e.g. to represent something of the form ‘All *As* are *Bs*’. This looks like a claim that there is a distinct kind of mental representation—an essentially general one—that figures in thought. And just as was the case with Locke, it seems that Aristotle claims that perception on its own cannot provide this kind of mental representation because it necessarily represents particulars. The best way to understand these claims—but to still make them consistent with Aristotle’s empiricist account of concept acquisition—is *not* to hold that thought is carried out in perceptual vehicles, but instead to claim that thoughts only derive their contents from perception.

For these two reasons, we should not interpret Aristotle as agreeing with the fundamental claim of neo-empiricism, that the vehicles of conceptual representation—the kind of representation that goes on in thought—are perceptual. We should think of Aristotle as holding that the contents of all thoughts ultimately derive from perception. But we should also interpret him as holding that thought is carried out using a kind of representation that is fundamentally different from those that feature in perception.

<sup>113</sup> Aristotle refers the principles (*archai*) of Posterior Analytics 2.19 as ‘the primitives’ (*ta prōta*) at *APo.* 2.19 100b4, and describes the initial upshot of induction as “a primitive universal (*prōton katholou*) in the soul” at *APo.* 2.19 100a17.

<sup>114</sup> *de An.* 3.8 432a13–14.

## 5 Conclusion: the theoretical benefits of Aristotelian empiricism

What can we conclude from this key difference between Aristotle's empiricism and neo-empiricism? Why should we care that Aristotle's account does not share neo-empiricism's key feature? I want stress two things we can learn from this difference between Aristotle's account and neo-empiricism.

Firstly, the difference between Aristotle and neo-empiricism is of historical interest, because it shows that we should broaden our perspective as to what counts as an instance of concept empiricism. Prinz described the claim that there is no amodal code of representations that are unique to thought—the denial that there is a *lingua franca* of the mind, as he put it—as an “important component of traditional empiricism”.<sup>115</sup> We should be sceptical of this claim, as it excludes Aristotle (and Locke) from that tradition. Aristotle and Locke should not be excluded as counting as concept empiricists, because they clearly both give perceptual experience a special and central role in explaining how we have the concepts that we do. For this reason, we should therefore adopt a broader understanding of what it is to be a concept empiricist as simply someone who claims that the content of thought is ultimately, and in some sense exclusively, grounded in the content of perception.

Secondly, I shall end by suggesting that the kind of concept empiricism I've attributed to Aristotle promises to have at least some theoretical benefits over neo-empiricism. In particular, it seems that Aristotelian empiricism might get over a problem which neo-empiricism faces with accounting for *reasoning*. And it seems to do so precisely because it differs from neo-empiricism in the way I've outlined.

We can illustrate this problem by focusing on the role of concepts in accounting for inference. Consider the following inference:

1. Dogs are mammals.
2. Mammals give birth to live young.
3. *So* dogs give birth to live young.

One key role for concepts, as I outlined at the beginning, is to explain these kinds of transitions of thought. To do this, concepts need to be something which can hold fixed across different lines of an inference. The inference above, for example, is only valid (and a genuine instance of *modus ponens*) if the same concepts *DOG*, *MAMMAL*, and *GIVES BIRTH TO LIVE YOUNG* figure in different lines of the inference.

There is reason to be sceptical that neo-empiricism can provide us with concepts which can play this explanatory role. This is because neo-empiricism claims the role of concepts in thinking is played by proxytypes, particular perceptual representations which act as proxies for long-term memory networks of associated perceptual representations. Proxytypes, in virtue of the kind of thing they are, look ill-suited to be what holds fixed across different lines of an inference.

We can formulate this kind of objection in different ways. I will outline, briefly, a version of it given by Machery.<sup>116</sup> Machery's objection focuses on the neo-empiricist claim that a particular perceptual representation, such a perceptual representation of a border collie, can serve as the

<sup>115</sup> Prinz, *Furnishing the Mind*, 120.

<sup>116</sup> Edouard Machery, “Neo-Empiricism and the Structure of Thoughts,” in *The Architecture of Cognition: Rethinking Fodor and Pylyshyn's Systematicity Challenge*, ed. Paco Calvo and John Symons (Cambridge, MA: The MIT Press, 2014), 343–48; Jonathan Weinberg, “Making Sense of Empiricism: Review of Jesse Prinz, *Furnishing the Mind*,” *Metascience* 12 (2003): 282–84. It is worth noting that Machery understands his version of this objection to be essentially the same problem that Fodor and Pylyshyn raised for connectionism in their classic paper, “Connectionism and Cognitive Architecture: A Critical Analysis,” in which they argued that connectionism fails to account for the systematicity of thought.



proxytype for the long-term memory network for DOG, but also, on a different occasion, for the long-term memory network for MAMMAL or ANIMAL, etc. For the above inference to be valid, the particular perceptual representation—the border collie representation—needs to be hooked up with the same long-term memory network—the one for DOG—in each of the different lines of the inference. To account for the validity of this inference, therefore, the neo-empiricist needs say why the particular border collie representation is hooked up with the same long-term memory network in the two different lines of the inference in which it appears.

How can the neo-empiricist answer this question? They cannot, given the very nature of their view, claim that some intrinsic feature of the particular perceptual representation involved, as that, *ex hypothesi*, could serve as a proxy for the long-term memory network for MAMMAL or ANIMAL instead. The answer neo-empiricists typically give, as Machery points out,<sup>117</sup> is to say that what makes the border collie representation serve as a proxy specifically for the dog long-term memory network it has a causal or historical relationship to that specific long-term memory network.<sup>118</sup>

This answer looks unsatisfactory. It means that an inference like the one above is only valid because the particular perceptual representation that figures in it is contingently hooked up with the same long-term memory network in each of the different lines of the inference.<sup>119</sup> But the above inference surely is valid in virtue of its logical form, i.e. just in virtue of the identities of the concepts that figure in it. But it is hard to explain how this is the case if the identities of concepts are determined by their causal or historical relations to long-term memory networks, as the neo-empiricist claims. Neo-empiricist concepts, in this way, look ill-suited to account for the role of concepts in reasoning.

If we consider Aristotelian empiricism, however, we see that it has a key theoretical advantage here. The Aristotelian version of concept empiricism I have outlined escapes this criticism entirely. It does so because of its key difference with neo-empiricism, because it claims that forming a concept involves a new *kind* of representation—an essentially general one—which perception cannot provide on its own. This means that Aristotelian empiricism does not need to provide the kind of explanation the neo-empiricist had to, about how particular perceptual representations get hooked up with the right set of representations in memory. This is because, on the Aristotelian picture, the content of a concept is determined at the initial stage of concept formation, in Aristotelian induction. Concepts so-understood can much more easily account for logical transitions between thoughts, and be what holds fixed across different lines of an inference. In this way, an account of concepts modelled after Aristotle's empiricism looks like it play at least some of the explanatory roles of concepts better than the neo-empiricist account. If this is correct, Aristotelian empiricism has more than mere historical interest.

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<sup>117</sup> Machery, "Neo-Empiricism and the Structure of Thoughts," 345.

<sup>118</sup> Barsalou, "Perceptual Symbol Systems," 588; Prinz, *Furnishing the Mind*, 151.

<sup>119</sup> Machery, "Neo-Empiricism and the Structure of Thoughts," 345–46.

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