Words and Images: An Essay on the Origin of Ideas, by Christopher Gauker. Oxford and New York: Oxford University Press, 2011. Pp. xii + 302. H/b $38.40.

Christopher Gauker's *Words and Images: An Essay on the Origin of Ideas* pursues two ambitious and original projects. First, Gauker develops and defends the Sellarsian thesis that public language is the medium of conceptual thought, all thought that involves distinguishing between particulars on the basis of the kinds to which they belong. Concepts, on Gauker's view, are not expressed or conveyed by means of language. Rather, concepts are words and phrases used in meaningful acts of speech (p. 257). Second, Gauker undertakes to show that dispositions to produce and consume sentences containing ordinary, empirical words, like 'icicle', 'window', and 'blackbird', can be learned on the basis of a kind of imagistic thinking that does not involve the application of concepts. (Imagistic representations include both 'receptive' perceptions as well as 'prospective' mental imagery.) Since these words, when used in intersubjective communication or inner speech, according to Gauker, just are the concepts *icicle*, *window*, and *blackbird*, an account that explains how speakers acquire the aforementioned dispositions also functions as an account of concept learning.

In the course of pursuing these projects, Gauker also outlines a radically pragmatist theory of language. Language is portrayed not as a means of conveying thoughts from one speaker to another, but rather as a tool for optimizing the performance of multi-agent tasks. More specifically, overt acts of speech are instruments that enable one agent to guide from outside, as it were, how another agent engages in prospective, imagistic planning. By making assertions, an agent can instill in those who hear her imagistic representations of their situation that permit each participant to carry out her part of a collaborative project in an optimal way (p. 242).

On Gauker's view, the only genuine representations in the mind are non-conceptual, imagistic ones. Language does not augment or 'upgrade' our endogenous, imagistic mindware with novel representational resources à la Andy Clark (see Clark's 'Magic Words' in *Language and Thought: Interdisciplinary Themes,* edited by P. Carruthers and J. Boucher, Cambridge University Press, 1998, pp. 162–83), but instead enables human beings to create and manipulate imagistic representations in ways that would otherwise be impossible. In this respect, Gauker's view sharply departs from other strong cognitive conceptions of language (for discussion, see Peter Carruthers, 'The Cognitive Functions of Language', *Behavioral and Brain Sciences*, 25 (2002), pp. 657–726).

Chapters one through four critically examine alternative, language-independent theories of concepts and are intended to clear the ground for positive developments in the second half of the book. Chapter one begins by raking the empiricist view that concepts are 'abstracted' from perceptions over

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a briar patch of objections. It also poses challenges to 'contemporary Lockeans', including Eleanor Rosch, Jean Mandler, and Jesse Prinz. Chapter two argues against the Kantian theory of concepts and also criticizes Lawrence Barsalou's view that 'conceptualizations take the form of simulations that create the experience of "being there" with category members' ('Situated Simulation in the Human Conceptual System', *Language and Cognitive Processes*, 18 (2003), p. 543). Chapter three targets Paul Churchland's and Peter Gärdenfors's perceptual similarity space theory of concepts. Chapter four explores different manifestations of the view that concepts are building blocks of language in the work of Wilfrid Sellars, Jerry Fodor, and Robert Brandom. Critical discussions in this chapter are highly insightful, self-standing contributions to the interpretation of all three authors.

Many philosophers will be receptive to efforts, beginning in chapter five, to show that nonconceptual, imagistic cognition supports various kinds of problem-solving in human beings and other animals. Although Gauker says that he finds 'no precedent in the history of philosophy' for this view (p. xi), it is hardly new. An influential treatment of the idea that non-human animals rely on mental imagery to guide practical decision-making can be found, for example, in Aristotle (see Martha Nussbaum, *Aristotle's De Motu Animalium*, Princeton University Press, 1978), and there is an obvious sense in which the assumption that 'constructive mental imagery … can do much of the work traditionally ascribed to conceptual thought' (p. xi) is central to both classical and contemporary empiricism. This would be true, even if, as Gauker argues, Locke and his heirs wrongly conflate the building blocks of imagistic cognition with those of conceptual thought.

Central to Gauker's discussion of imagistic cognition is the idea of a *perceptual similarity space* (PSS). In a PSS, the axes used to locate a perceived object or scene are dimensions of perceptible variation. These include both basic perceptible attributes, like color, shape, scent, and texture, as well as higher-order attributes, like overall resemblance in appearance to a cat or a chair (pp. 159–60). Imagistic representations of particulars, on this approach, correspond to points or 'marks' in PSS, where the distance between two points in PSS is inversely related to the perceived similarity of the particulars to which they correspond.

Gauker argues that languageless minds are incapable of drawing boundaries in PSS, however vague, that correspond to boundaries between *kinds* of objects ('perceptual experience, and imagistic thought more generally', he writes, 'draw no functional boundaries between one kind of thing and another' (p. 1)). A squirrel, for example, can use its inner similarity spaces to decide whether a branch is close enough to jump to, but this is not the kind of boundary, he says, that concepts characterize. Concepts rather characterize boundaries 'that [do] not vary with the vicissitudes of the animal's current states and needs' (p. 111). It is specifically the need to decide whether or not to use a *word* in intersubjective discourse, Gauker says, that first tenders the

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mind with a reason to draw stable, functional boundaries between regions of PSS.

I find this suggestion implausible. One reason is that non-discursive, imagistic cognition can be used to guide actions that depend for their successful performance on the presence of a stable kind or individual in the perceived environment. Whether a squirrel initiates eating or caching behaviour, for instance, may depend on the distance between its imagistic representation of a currently perceived particular and its stored, imagistic representation of an acorn. Whether or not a bowerbird performs its dance in the presence of another bird may depend on the latter's perceived similarity to a female of the species. These quick examples fall short of showing that regions of PSS are full-fledged concepts, but they provide reason to think that kind-sensitive boundaries in animal cognition may arise prior to words that mark them.

Another reason is that Gauker understands imagistic cognition to include the capacity to form *dynamic imagistic representations* (DIRs) of objects. A DIR of a certain dog, for example, is a set of perceptual memories and imaginative representations that enable one to recognize the dog across changes both in spatial point of view and the dog's posture. According to Gauker, imagistic cognizers are only able to construct DIRs for individuals or particulars, for example, for Asta and Toto, but not for the kind *dog* or *fox terrier* (p. 159). This claim, for which no argument is given, strikes me as ad hoc. It is also seems at variance with psychological theories according to which viewpoint-dependent, perceptual representations are used by the visual system for purposes of high-level object recognition (for discussion, see Stephen Palmer, *Vision Science: Photons to Phenomenology*, MIT Press, 1999, Ch. 9).

Chapter six presents an account of the conditions under which imagistic representations in perceptual similarity space (PSS) accurately represent an object or scenario's location in objective quality space. According to the account,

> 'A mark in perceptual similarity space is a *candidate for accuracy relative to a set of dimensions of perceptual similarity space* if and only if for each dimension in the set, the mark lies in a region of perceptual similarity space in which [variation along] that dimension is a true measure of variation along the dimension of objective quality space that corresponds to it'. (p. 202)

Given this provision, marks in PSS corresponding to the Müller–Lyer arrows, for example, do not even qualify as candidates for accuracy relative to the perceptual length dimension (p. 203). If, however, the possibility of error is taken to be intrinsic to representation (p. 192), then it also implies that we do not strictly speaking *represent* the Müller–Lyer arrows as having certain lengths in visual experience. That seems rather counter-intuitive.

Chapter seven presents a highly idealized, philosophical account of the conditions under which an agent will be disposed to produce and accept sentences when engaged with others in simple forms of co-operative

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problem-solving. (Think of conversations between Wittgenstein's builders, but with the addition of sentential connectives and quantifiers to their pragmatic language game.) Since the account does not presuppose that the agent has spoken language in the past, it does double-duty, Gauker says, as an account of language learning (p. 220).

The role of imagistic cognition in the account can be illustrated by what Gauker calls the *Betweenness Rule* (p. 234). According to the rule, an agent will be disposed to utter 'That's a dog' in response to a scenario X if imagining the utterance, while perceiving X results in a hybrid perceptual–imaginative representation whose corresponding point in PSS is between its two nearest neighbours in the cluster of points representing previously encountered scenarios labeled with 'That's a dog', but is not between its two nearest neighbours in the set of points representing previously encountered scenarios labeled with 'That's not a dog'. The notion of *labeling* here is a technical one: an utterance *s* labels a perceived scenario X when *s* is part of X and the agent associates the demonstratives in *s* with representations of particular objects in X (p. 231). (Gauker offers no explanation of how a young child might learn to make such associations.) Other rules in chapter seven cover the production and acceptance of negations, disjunctions, conditionals, and sentences containing universal quantifiers.

It is not immediately evident how the account of communication presented in chapter seven is supposed to function as an account of language (concept) learning. Most of the rules laid out in the chapter explicitly assume the presence of certain capacities for imagistic cognition, for example, capacities for generating imagistic representations of goal states (p. 224) and for imagistic planning (p. 225–7), and do not address developmental issues at all. As far as I can tell, the only place Gauker does constructively address the topic of language learning in the chapter is in a discussion of the *Betweenness Rule* on p. 232. There he mentions that his account of when an agent will be disposed to utter an atomic sentence *s* assumes (1) that the agent has already previously encountered (and remembers) a number of scenarios labeled with '*s*' and a number of other scenarios labeled with 'not-*s*' and (2) that representations of scenarios labeled with '*s*' in the agent's PSS are arranged in a cluster of a certain kind. While the chapter has plenty to say about how speakers might decide what to say when collaborating in the pursuit of a shared goal, its account of how words — and, so, concepts — are first acquired is surprisingly thin. It is also entirely speculative: Gauker admits that he has no empirical evidence that the processes of imagistic cognition he describes do in fact underlie the acquisition of language and its use (p. 221).

Complaints aside, Gauker has written a rich and thought-provoking book deserving of careful study. I fully agree with him that philosophers of mind have tended to underestimate or even to overlook the powers of nonconceptual, imagistic cognition. The investigation of imaginative and

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perception-based forms of reasoning contained in *Words and Images* is a valuable step in the right direction.

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doi:10.1093/mind/fzu108 Advance Access publication 19 September 2014

Mental Causation and Ontology, edited by S. C. Gibb, E. J. Lowe, and R. D. Ingthorsson. Oxford: Oxford University Press, 2013. Pp. viii + 272. H/b £42.00.

This volume brings together new essays on mental causation from some of the most notable figures in the contemporary debate on the topic. Most of the essays are concerned with the question of how minds can be causally efficacious. This is discussed in relation to issues about physicalism, theories of causation, the ontology of properties, causal powers, and free will. The volume is a remarkable collection and it presents the cutting edge of contemporary debate surrounding mental causation. The investment of a close reading will be rewarded.

The particular problem of mental causation that I shall focus on in this review is *the exclusion problem*, which is purported to demonstrate that non-reductive physicalism (NRP), namely the type of physicalism that takes mental properties to be distinct from physical properties, cannot accommodate the causal efficacy of mental properties. According to NRP, mental properties are realized by physical properties. However, as it follows from *the principle of causal closure*, any event that appears to be caused by a mental property instance is also causally necessitated by a physical event, presumably by the instance of its realizing property. According to *the exclusion principle*, no event has (simultaneous) multiple sufficient causes unless it is genuinely causally overdetermined. Therefore, either mental properties and their realizers causally overdetermine their effects systematically, or mental properties are causally *excluded* by their realizers.

The responses to the exclusion problem vary. Sydney Shoemaker (Ch. 2) argues that a proper account of the realization relation solves the problem. Peter Menzies (Ch. 3) suggests that the right theory of causation gives us resources to replace the exclusion principle with a more plausible one which yields different consequences. David Papineau (Ch. 5) and David Robb (Ch. 9), on different grounds, resist NRP and take mental properties to be physical properties. Paul Noordhof (Ch. 4) thinks that some of these

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