

EPICUREANS AND STOICS ON THE RATIONALITY OF PERCEPTION

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This paper examines an ancient debate over the rationality of perception. What leads the Stoics to affirm, and the Epicureans to deny, that to form a sense-impression is an activity of reason? The answer, we argue, lies in a disagreement over what is required for epistemic success. For the Stoics, epistemic success consists in believing the right propositions, and only rational states, in virtue of their predicational structure, put us in touch with propositions. Since they identify some sense-impressions as criteria of truth and thus as the basis for epistemic success, the Stoics maintain that sense-impressions must be rational. The Epicureans agree with the Stoics that sense-impressions function as criteria of truth, and also agree broadly on what it means for a state to be rational, but deny that sense-impressions are rational because (1) they think that epistemic success must be supported by a state that is necessarily error-free and (2) accept that rational states can be false. In reconstructing this debate, we refine the standard interpretation of the fundamental difference between Epicurean and Stoic epistemology and also develop parallels with epistemological debates today. One upshot is a more nuanced appreciation of the merits of Epicurean epistemology vis-à-vis the Stoics.

1 Introduction

It is standard to characterize the fundamental difference between Epicurean and Stoic epistemology as follows: there is a psychological state, often referred to as a perception (*aisthêsis*) or a sense-impression (*phantasia aisthêtikê* / *visum*), that the Epicureans think is always true but that the Stoics think is sometimes true and sometimes false.¹ This difference is

¹ We clarify this terminology in section 2. Translations ours unless otherwise noted.

taken to be fundamental in that it explains other differences we find in Epicurean and Stoic epistemology, such as the Stoic attempt to single out a special kind of sense-impression – the famous cognitive or kataleptic impression – that is always true. That is, it is *because* the Stoics take sense-impressions to be sometimes true and sometimes false that they try to identify a special kind of sense-impression that is always true, and it is *because* the Epicureans take sense-impressions to be always true that they do not (and need not) engage in this further task.

We find the idea that the Epicureans and Stoics differ about whether a single kind of psychological state is always true both in ancient texts and contemporary scholarly discussion. Consider, for example, the following passage from Cicero's *De Natura Deorum*:

[T1] Zeno [the founder of the Stoic school] claimed that some impressions were false but not all. But Epicurus feared that, if one single impression could be false, none of them would be true, so he stated that all impressions registered the truth. But in none of these views was he sound. While seeking to ward off the lighter punch, he ran into one heavier. (1.70, tr. Walsh, modified)

Consider, also, the following passage from Sextus Empiricus:

[T2] But Epicurus said that all perceptible things exist such as they appear and strike us in perception, since perception never lies (but we do get things wrong in opining). The Stoics... take a middle road and say that some perceptible things exist as true, while others are not real: perception lies about them. (*M* 8.185; tr. Bett, modified)

Both passages presuppose that the Stoics and Epicureans conceive of a single thing – in **T1**, an impression (*visum*), and in **T2**, perception (*aisthêsis*) – as being always true (the Epicureans) or sometimes false (the Stoics). Now consider Gisela Striker's much more recent interpretation:

But unlike Epicurus, the Stoics took the commonsensical view that some sense-impressions must be false, and so their definition of cognitive impressions is meant to indicate the cases in which sense-impressions may lead to knowledge. (1990, p. 152)

Striker here voices not only the view that the Stoics and Epicureans disagree over whether a single state is always true, but also the intuition that the Stoic position is, in some way, the “common sense” position (the final sentence of T1 suggests the same).²

The standard view, then, among both ancient commentators and those today, is that the central difference between Epicurean and Stoic epistemology consists in a disagreement over whether the same psychological state is always true or sometimes false. One of the aims of this paper is to show that, while the standard view is not strictly speaking false, there is such a significant difference between the nature of the state the Epicureans claim is always true and the nature of the state the Stoics claim is sometimes false that simple acceptance of the standard view obscures important elements of both theories. For the Epicureans, what is always true is the bare reception of sensory input, upon which the mind has not acted at all (it is, in this sense, a non-rational (*alogon*) state). For the Stoics, what is sometimes true and sometimes false is the product of the mind operating on input immediately conveyed to it from the sense-organs (and is, in this sense, a rational (*logikê*) state). In fact, we will show that both the Stoics and the Epicureans *agree* that the possibility of falsehood arises once the mind has operated on input from the sense-organs. So, the standard view is misleading insofar as the famous Epicurean claim that “all sense-impressions are true” does not concern the kind of state that the Stoics claim is sometimes true and sometimes false and, more importantly, the Epicureans afford a role in their system to the kind of state the Stoics think is sometimes false and agree that it is sometimes false.

Once we have clarified the difference between the Stoics and Epicureans on the rationality of the sense-impression, we consider *why* each school adopted their respective position. We argue that the central disagreement concerns what epistemic role they afford the bare reception of input by the sense organs. According to the Epicureans, such bare input provides a satisfactory basis for all the epistemic achievements human beings might ever need.

² This intuition is widespread. Consider three more contemporary examples. Everson (1990, p. 161): the Epicurean thesis that all sense-impressions are true “is a strange and strong claim, and one far removed from our ordinary beliefs about perception”. Gerson: the Epicurean position “seems highly counter-intuitive, to say the least” (2009, p. 95). Vogt, who ultimately argues that the Epicurean view is “a sophisticated philosophical proposal”, begins by noting that the Epicurean claim “seems deeply misguided. It appears obvious that sense-perception can err” (2016, p. 145). Comparing the Epicureans with the Stoics, Frede remarks that, despite “striking superficial similarity”, the two schools differ on whether sense-impressions are formed in the mind, and we agree with this observation (1999, p. 318).

According to the Stoics, only input that has been worked on by the mind could serve as a proper basis for our epistemic success.

We think it is useful to cast the Epicurean and Stoic views as rival responses to issues raised in the famous argument in Plato's *Theaetetus* that perception (*aisthêsis*) is not identical to *epistêmê* (184–187).³ Although interpretation of that argument is, and always has been, controversial, on one well-established reading Plato rejects the identification because perception does not have the right kind of structure to constitute *epistêmê*.⁴ In particular, perception lacks predicational structure, in that it cannot attribute features to sense-objects and represent *x* as being *F*: for this reason, Plato maintains that it does not “hit upon truth” (186c7). Rather, Plato argues that such structure requires “calculations” (*analogismata*) that only the soul, operating by itself, can perform (186b11-c5).

As we understand them, the Stoics agree with Plato that perception would have to have a kind of predicational structure that only reason can create if it were to ground immediate epistemic success (in a sense we clarify in the next section). However, they depart from Plato in holding that perception or, at least, its deliverances (i.e. sense-impressions) *do* have such structure, because perceptions are in fact products of reason. The Stoics, in effect, think that Plato does not properly appreciate what perception would be like if, as the character Socrates insists in the *Theaetetus*, we do not perceive *with* the senses but, rather, *with* the mind *through* the senses (184c1–d5). The Epicureans, on the other hand, agree with Plato about the structure of perception – that it is non-rational – but disagree with him about whether this rules out perception as contributing immediately to our epistemic success. In fact, they think perception *must* lack any influence by reason and, so, must lack any structure that only reason can create, if it is to ground epistemic success.

³ Many scholars acknowledge the *Theaetetus* as an important source for the development of Hellenistic epistemology. For discussion of its influence on the Epicureans, see e.g. Verde (2018, pp. 83-9), Vogt (2016, pp. 152-4), Striker (1974 / 1996, pp. 35-6), Everson (1990, pp. 164-5), and Asmis (1984, pp. 147-162); for its influence on the Stoics, see e.g. Shogry (2021), de Harven (2018, pp. 222-8), Sedley (2002, pp. 149-153), and Long (2002). Our engagement with the *Theaetetus* differs from these earlier studies in focusing on the argument at 184-7 and the issue of the rationality of sense-perception.

⁴ E.g. Burnyeat (1976). We emphasize that we do not claim this is the *correct* interpretation of Plato's argument. The point, rather, is that it is one way of interpreting the argument, and it provides a fruitful backdrop against which to evaluate the Epicurean and Stoic debate over the rationality of perception.

The plan is as follows. First we clarify our project by explaining some of our terminology and the terminology of the Stoics and Epicureans (section 2). We then consider the role that each school affords reason in the generation of sense-impressions, noting the influence of Plato's *Theaetetus* in the formulation of their respective views (section 3). Next, we argue that the debate between the Stoics and Epicureans over the rationality of the sense-impression transpires in the context of a more or less continuous conception of rationality (section 4). We then present what we take to be the fundamental motivations driving each school to affirm or deny that sense-impressions are rational (section 5). In our conclusion (section 6), we return to assess the standard view and evaluate the relative strengths of the Stoic and Epicurean positions.

2 Preliminaries

In this section we clarify our project by explaining some of our terminology as well as the terminology of the Hellenistic philosophers under consideration. First we explain the sense in which they conceive of sense-impressions as indispensable for *immediate epistemic success*. As is well known, both the Epicureans and the Stoics designate sense-impressions, or a certain subset of sense-impressions, as criteria of truth.⁵ Criteria of truth are, as their name suggests, the means by which we can “discover or ascertain the truth” (Striker 1990, 144), and accordingly both schools assume that we ought to form our beliefs on the basis of criteria of truth.⁶

Many interpreters speak generically of the role that criteria of truth play in securing *knowledge* (as, for example, Striker does in the passage cited in the introduction). Although this

⁵ For Epicurus, see e.g. DL 10.31. For the Stoics, kataleptic impressions are criteria of truth, and some kataleptic impressions are also sense-impressions: see Cicero, *Ac.* 1.40-41 and DL 7.46, 54. Both schools acknowledge further criteria of truth (e.g. preconceptions), but, while we discuss preconceptions, to keep our discussion tractable we focus only on the criterial role attributed to sense-impressions. This means we must forego discussion of two controversial but tangential topics: (1) non-perceptual kataleptic impressions in Stoic epistemology, on which see Vogt (forth.) and Schwab (ms.), and (2) the “impression-generating applications of the mind” (*tas phantastikas epibolas tês dianoiias*: DL 10.31) in Epicurean theory, which likely signals an interest in impressions that are both intellectual and criterial.

⁶ This characterization of the criterion of truth, as the psychological item on the basis of which we ought to form our beliefs, applies to the “prodelic” conception of the criterion as much as to the “adelic” conception. For classic treatments of this distinction, see Striker (1974 / 1996) and Brunschwig (1988). More on our use of “belief” below.

practice is not too misleading, we think that it is slightly imprecise, as it suggests that there is an agreed-upon notion of what cognitive state is created if one uses the criteria of truth as one should, and that this state is knowledge. In the case of the Stoics, it is clear that by following the criteria we achieve *katalêpsis* – roughly speaking, a belief that given how it arises is guaranteed to be true.⁷ Stoic terminology thus evinces a concern to elevate true beliefs verified by the criteria of truth over true beliefs that have not been so verified. By contrast, the Epicureans do not attribute a special status to criteria-verified true beliefs: they apply no specific term, for instance, to distinguish the true beliefs formed on the basis of the criteria from those formed in other ways. The Epicureans do, to be sure, speak of confirming or revising beliefs by referring them to the criteria, and Epicurus repeatedly says that we “should think” or “should see” things that are verified by criteria and “should not believe” or “must not assert” things that are not verified by criteria (e.g. at *Ep. Her.* 55, 59, 60, 63, 71). But that does not seem to reflect a view on which true beliefs that have been so verified have some special epistemic status that true beliefs that have not been so verified lack. For example, although Epicurus does, on occasion, use familiar terms of positive epistemic appraisal (e.g. *gignôskein* at *Ep. Her.* 78 and *gnôsis* at *Ep. Pyth.* 85), he often enough speaks simply of true *doxa* as the epistemic achievement we aim at in philosophical activity (e.g. *Ep. Her.* 77 and *Ep. Men.* 124).⁸ Thus, we speak neutrally of the role Stoics and Epicureans afford sense-impressions in our epistemic success, or, equivalently, of the *critical* role they afford sense-impressions.

The Epicureans and Stoics, however, are interested in the role sense-impressions play in our *immediate* epistemic success. To understand what we mean by this, consider the function of perception in earlier, classical theories. Although Plato maintains that we acquire *epistêmê*

⁷ Common translations of *katalêpsis* are “cognition”, “grasp”, and “apprehension”, but we prefer a transliteration. When speaking of the Stoics, we use “belief” not to translate their notion of *doxa* (opinion) but instead to render *hupolêpsis*, the Stoic term for any cognitive state constituted by an act of assent, of which *katalêpsis* is one kind. See further discussion in Moss and Schwab (2019, pp. 24-5) and Vogt (2012, pp. 165-6). The Epicureans also operate with a similar notion of belief as the Stoics – namely, a cognitive state involving commitment on the part of the agent – but most often use forms of *doxazein* and *nomizein* to pick it out.

⁸ See further discussion in Gerson (2009, pp. 91-3). We note that Epicurus repeatedly calls the views he argues for *doxai* (see e.g. *Ep. Her.* 35, 37; consider also the title of the work *Kuriai Doxai*). Although such uses could pick out *content* rather than *mental states*, Epicurus’ willingness to call them *doxai* is telling. The Stoics, for example, would not describe the tenets they defend as *doxai*: they instead call these theorems (*theôremata*) or elements (*stoicheia*) of their philosophical system (*sustêma*).

through recollection, he also seems to have thought that perception is required to initiate recollection (e.g. at *Phaedo* 73b7-77a5). Aristotle, too, certainly thought that exercises of perception start the process that ultimately terminates in the possession of *nous* and *epistēmē* (*APo.* 2.19). For Plato and Aristotle, then, sense-impressions are required for epistemic success, insofar as they constitute the starting-points of a long-term process culminating in systematic understanding of a domain. But neither Plato nor Aristotle develop a theory of how our token beliefs ought to be guided by token sense-impressions or perceptions, or of what would be required for a transition to be successful from a given sense-impression or perception to the belief that *p*.⁹ The Epicureans and the Stoics, on the other hand, focus on precisely this *immediate* role that sense-impressions play in our epistemic success. This shared focus provides the context for the question we pursue here: according to the Stoics and Epicureans, what must a sense-impression be like for it to be criterial for the belief that *p*?¹⁰

Before beginning our investigation of this question, it will be helpful to clarify the language in which the Stoics and Epicureans couch their theories. Regarding the Stoics, we focus on what they call, most precisely, “sense-impressions” (*phantasiai aisthêtikai*), which are impressions that are “taken up through a sense-organ or sense-organs” (DL 7.51). They are a mental state to which a subject can assent or not, but are themselves non-committal and non-doxastic. “Perception” (*aisthêsis*), as it is used by the Stoics, can pick out different things, but it never picks out *merely* an impression received through the sense organs. Here is a representative list of the things the Stoics call “perception”:

[T3] According to the Stoics, ‘perception’ refers to: (a) the breathy-material that extends from the ruling part to the senses, (b) the *katalêpsis* that comes through them, (c) the constitution of the sense organs (in which some people may be

⁹ Indeed, if Moss and Schwab (2019) are correct, it is only with Aristotle that we begin to find a clear interest in the notion of belief as such.

¹⁰ This is not to say the Stoics and Epicureans *disavow* the long-term project of interest to Plato and Aristotle. The Stoics, for instance, acknowledge a further form of epistemic success which, like the classical philosophers, they call *epistēmē*, and which they characterize as a “secure *katalêpsis*”, i.e. *katalêpsis* that will not be given up in the face of dialectical scrutiny (Stob., *Ecl.* 2.73-4). The Epicureans, too, are interested in constructing a comprehensive physical theory, one that is suitable to serve as a firm foundation for human happiness (cf. *Ep. Pyth.* 85). However, the Stoics and Epicureans pursue this wider project on the assumption that it requires an account of what is involved in *immediate* epistemic success, and it is this assumption that is missing (or at least very hard to find) in Plato and Aristotle.

impaired). And (d) their activity is also called perception. (DL 7.52; tr. Inwood and Gerson modified)

None of (a)-(d) picks out an impression. This is clear for (a) and (c). But it falls out of (b) too, since *katalêpsis* requires not only forming a kataleptic impression but assenting to it (SE *PH* 3.241; *M* 8.397, 11.182). Another source is more explicit on this point: “those in the Stoa establish perception (*aisthêsis*) not in the impression alone but rather make its existence dependent upon assent” (Stob., *Ecl.* 1.49.25).¹¹ Moreover, the activity of the sense organs (d) is not itself a sense-impression but rather the causal antecedent for it: the Stoics sharply distinguish the functioning of the ruling part from the functioning of the sense-organs, and attribute to the ruling part the task of creating each sense-impression (SE *M* 7.232-3; Aëtius 4.8.1). Thus, none of the uses of “perception” recognized by the Stoics picks out merely a sense-impression.¹²

The perception-terminology of the Epicureans, by contrast, is not so clearly regimented. Most often, the Epicurean sources will use the terms *aisthêsis* (“perception”) and *phantasia* (“impression”) interchangeably to pick out the non-doxastic representational state created in the sense-organ upon the receipt of atomic images streaming into it from the outside.¹³ When used in this way, *aisthêsis* and *phantasia* refer to the item in Epicurean theory that we mean to compare with Stoic sense-impressions: the state that conveys to the perceiver what the external world is like, without yet implying any doxastic commitment on the part of the perceiver. However, there is also a more general usage of “impression” discernible in Epicurean theory. Epicurus himself uses *phantasia* to refer to the representational states formed directly in the mind, without any

¹¹ This seems to be the paradigmatic usage of *aisthêsis*, to judge from Aëtius 4.8.12: “the Stoics [say] that every perception is an assent and *katalêpsis*”. A similar point is made at Cicero, *Ac.* 1.40. This pattern of Stoic usage may have been what led Cicero to render *katalêpsis* with the Latin *perceptio*.

¹² The only possible exception we are aware of is Aëtius 4.8.1, which suggests that a kataleptic impression that arises through a sense-organ is a perception. It is unlikely, however, that this passage reflects genuine Stoic usage because it would require that the Stoics classified not just certain impressions as kataleptic, but some states (*hexeis*), capacities (*dunameis*), and activities (*energeiai*) as well (because they are listed alongside sense-impressions). We have no other evidence, however, that the Stoics did this. What has likely happened is that the use of “perception” to pick out *assent* to a perceptual kataleptic impression has led Aëtius or his source to mistakenly think that “perception” applies to a perceptual kataleptic impression itself.

¹³ Later sources will occasionally reserve *aisthêsis* for the capacity of sense-perception and *phantasiai* for its activities: thus SE *M* 7.208-210 and Plutarch *Ad. Col.* 1109a-b. But Sextus doesn’t consistently keep to this distinction, e.g. at *M* 8.185. For helpful discussion, see Bown (2016, p. 482 n. 34), and Asmis (1999, p. 264).

mediation or occurrent activity of the sense-organs (e.g. at *Ep. Her.* 50). These non-perceptual or mental impressions raise difficult questions of interpretation, but they are not our concern here, and context allows us to tell when they, rather than sense-impressions, are being indicated. As with the Stoics, our treatment of the Epicureans focuses solely on what they think *sense-impressions* must be like in order to serve as criteria, and the crucial point for now is that *aisthêsis* and *phantasia* are the Epicureans' most common labels for such states.

3 Epicureans and Stoics on the rationality of our sense-impressions

So then, both schools agree that sense-impressions are the basic states in virtue of which we are aware of the external objects we encounter in our surroundings.¹⁴ Thus, there is certainly some truth in the standard view, insofar as both schools do conceive of sense-impressions as playing this representational role, and the Epicureans say sense-impressions are always true while the Stoics say sense-impressions are sometimes false.

Despite their agreement on the representational role of sense-impressions, however, the Epicureans and Stoics have quite different conceptions of both their nature and formation. In particular, the Epicureans maintain that sense-impressions are non-rational states while the Stoics conceive of them as rational states. This disagreement is explicit and well-attested in our sources. For instance, Epicurus straightforwardly says that all perception is non-rational (*alogon*) (DL 10.31) and for the Stoics all the impressions formed by rational creatures, including their sense-impressions, are rational (*logikai*) (DL 7.51).

But what exactly does it mean to say that sense-impressions are non-rational or rational? Both schools approach this question with the same basic understanding of its terms. In the first instance (which we will refine in section 4), whether an impression is rational or not depends on whether it is formed, at least in part, through the activity of reason. Both schools assume that, if one can form a sense-impression without any exercise of the part of the soul that has reason, it is non-rational; by contrast, if forming a sense-impression requires reason to be active, then it is rational.

Each school's position on the rationality of the sense-impression finds support in their respective accounts of the mechanics of sense-impression formation. Let's take the Epicureans

¹⁴ For the Epicureans, see DL 10.49–50 and SE *M* 7.206–10. For the Stoics, see Aëtius 4.12.1–3 and SE *M* 7.161–3.

first. Although they conceive of the soul as unitary (Lucr. 3.136, 285), the Epicureans distinguish between the mind (*mens animusque*), which has reason, and the spirit (*anima*), which does not (Lucr. 3.136–146; cf. DL 10.66). The mind is located in the heart, whereas the spirit animates the other parts of the body, including the various sense-organs. Perception occurs when images (*eidōla*) or outlines (*tupoi*) emitted from external objects impact and interact with the soul-atoms that animate the sense-organs: different kinds of images fit into the pores constituting different sense-organs, so that (e.g.) only colors are registered by the eyes. In all cases, the sense-impression is the product solely of the interaction between the non-rational sense-organ and images, with the mind making no contribution at all.¹⁵ So, for example, a white table emits outlines that possess the same shape and color of the table. Those outlines enter the eye through the eye’s pores and alter it in a certain way, resulting in the sense-organ taking on an impression of the white table.¹⁶

The Stoics, by contrast, insist that sense-impressions are created not in the sense-organs but in the mind. According to their most detailed account, the Stoics characterize sense-impressions as imprints or alterations in the ruling part of the soul (*to hēgemonikon*) – the part which, for creatures like us, possesses reason and is also called the mind (*dianoia*) (SE *M* 7.232-41; Aëtius 4.21.1). Furthermore, the Stoics conceive of reason as “a compound of concepts and preconceptions” (Galen *PHP* 5.3.1, quoting Chrysippus’s *On Reason*).¹⁷ On the Stoic view, then, sense-impressions are in some sense filtered through the concepts and preconceptions which constitute the perceiver’s rational mind. So, for instance, when a perceiver encounters a white

¹⁵ See helpful discussion in Taylor (1980, pp. 119-20). We concede that the mind *does* play a role in generating *non-perceptual* impressions, e.g. while dreaming: see Lucr. 4.749-822 and Diogenes of Oinoanda frag. 9 col. III.6-V.13, and discussion most recently in Tsouna (2018). But given that these non-perceptual dream impressions are formed in the mind, are they thereby *rational*, according to the Epicureans? We think not, since they are said to be formed also by non-rational animals (Lucr. 4.984-1010).

¹⁶ Some Epicurean texts (e.g. Lucr. 4.812-3) suggest one additional requirement to form a sense-impression: the sense-organ must somehow apply or strain itself in response to the incoming succession of atomic images. Asmis characterizes this contribution from the sense-organ as an “act of attention”, not always under the deliberate control of the perceiver (1999, p. 272; 1984, pp. 124-6). In any case, this contribution from the sense-organ is neither classified by the Epicureans as an activity of reason, nor does it involve the application of concepts, and in both respects differs from the activity of interest to the Stoics (as we will now see).

¹⁷ We here follow tradition in translating *prolēpsis* as “preconception”, but it should be noted that it does not share a root with *ennoia*, which we translate as “concept”. Since the Stoics conceive of preconceptions as a kind of concept (DL 7.54, Aëtius 4.11.1-4), we will use “concept” to cover both *ennoia* and *prolēpsis*.

table, this object causes certain alterations in the eye, and those alterations are then conveyed to the mind (which the Stoics also locate in the heart). If all goes well, the mind subsumes those alterations under the concepts WHITE and TABLE, producing the impression that *the table is white*.¹⁸ The mind's deployment of concepts on the alterations conveyed to it from the senses is an automatic and subliminal process, requiring no explicit direction or attention from the perceiver, but it is for all that still a rational process.

So, the disagreement between Stoics and Epicureans on the rationality of sense-impressions is mirrored in their accounts of *where* in the soul these states are formed. The psychological site of perception is also queried in the stretch of Plato's *Theaetetus* we referred to in the introduction. At 184b, Socrates asks whether we perceive *through* the sense-organs or *with* them. When Theaetetus answers that it is *through* the sense-organs, not with them, that we perceive external objects, Socrates approves, on the grounds that there is "some single form, soul, or whatever one ought to call it, to which all the senses converge" (184d2-5, tr. Levett). Indeed, Socrates thinks that to reject this claim would be strange (*deinos*). However, we have seen that the Epicureans adopt a version of it in their account of perception. And in defending the Epicurean account, Lucretius makes an unmistakable allusion to this passage of the *Theaetetus*:

[T4] To affirm that the eyes cannot perceive anything, but are the means through which the mind sees, as though through open doors, is no easy matter when the sensory experience of our eyes leads us to the opposite conclusion, dragging and driving us to the pupils themselves; especially so, since we often fail to perceive glittering objects because our eyes are dazzled by their brightness. This does not happen to doors: those through which we really do see experience no pain when they are opened wide. (Lucr. 3.359-366, tr. Smith)

The position that Lucretius here argues against – that the eyes are “the means through which the mind sees” – is shared by both Socrates in the *Theaetetus* and the Stoics. In the following sections, however, we will suggest that the Stoics can be understood as reacting to what they see as a shortcoming in Socrates' view: what he overlooks, the Stoics think, is that sense-impressions, insofar as they are formed in the mind, would therefore have the synthetic and predicational structure that he thinks is necessary to ground our epistemic success.

¹⁸ We indicate propositional contents with italics and concepts with SMALL CAPS.

4 The Representational Structure of Rational States

We have seen, then, that the Stoics and Epicureans disagree on whether sense-impressions are rational and that this disagreement consists, in part, in a disagreement over *where* sense-impressions are formed. In this section we argue that this disagreement reflects an underlying *agreement* between the two schools on the operations reason performs and on the resulting structure that products of reason exhibit. The majority of our evidence concerns the Stoics (section 4.1), although we can also find a parallel conception in the Epicurean theory (section 4.2). Once these points of agreement have been identified, in the remainder of the paper we examine why the Stoics held, and the Epicureans denied, that sense-impressions are rational.

4.1 The Stoics on the distinctive feature of rational cognition

According to a common interpretation of Stoic epistemology, the distinctive feature of the rational mind is that it forms representational states with “propositional content”.¹⁹ So, roughly, only rational impressions can represent the table as being white or that *the table is white*. We agree with this interpretation in outline, but elucidate it further by adducing evidence that the Stoics attribute to rational impressions a certain kind of structure, and identify this structure as the feature in virtue of which rational impressions represent propositions. It is only once this more detailed Stoic account is on the table, we argue, that an adequate comparison between the Stoics and Epicureans is possible, since it is hard to find in Epicurean epistemology an interest in “propositional content” as such.²⁰

We begin with a passage of Sextus, where he explains how dogmatic philosophers distinguish rational from non-rational creatures:

[T5] But if the sign is neither perceptible, as we have shown, nor intelligible, as we have established, and there is no third option besides these, it has to be said

¹⁹ For versions of this view, see e.g. Striker (1974 / 1996) and Striker (1990), Annas (1990), Vogt (2012, pp. 171-5), Brittain (2014), and de Harven (2018).

²⁰ According to Plutarch, the Epicureans “entirely abolish” the genus of sayables, of which the proposition is one kind (*Ad. Col.* 1119f).

that there is no sign. Now, as far as each of these attacks is concerned, the dogmatists have been muzzled. But in constructing the opposite case they say that a human being does not differ from non-rational animals in uttered reason (for crows and parrots and jays also utter articulate sounds), but in internal reason, and not in the merely simple impressions (for those animals also have impressions), but in the ones that are metabatic and synthetic. (M 8.275–76; tr. Bett, modified)

Two initial points about this passage. First, although Sextus does not name the Stoics, speaking instead of “the dogmatists”, we agree with the majority of interpreters that he is reporting Stoic doctrine.²¹ Sextus attributes the distinction between uttered and internal reason to the Stoics elsewhere (*PH* 1.65), also in a context comparing the cognitive abilities of rational and non-rational animals, as does Porphyry (*Ab.* 3.2.1).²² Second, although **T5** tells us that the impressions of rational creatures are distinct in that they are “synthetic” and “metabatic,” Sextus unfortunately gives us no substantial characterization of these terms.²³ Nevertheless, related evidence enables us to develop a substantial interpretation of what it means for an impression to be synthetic. After we have done so, we speculate about what it could mean for an impression to

²¹ Von Arnim prints this passage as SVF 2.135 and 2.223. More recent scholars have agreed that it reports Stoic doctrine: thus Bronowski (2019, p. 206 n. 22), de Harven (2018, pp. 223-4), Gourinat (2013, pp. 14-5), Brittain (2005, p. 173), and LS (1987, v. 2, p. 319). Furthermore, we think that, on the taxonomy presented here, Epicureans would conceive of the perceptual impressions of humans as simple.

²² For discussion of the Porphyry passage, see Gourinat (2013, pp. 12-16).

²³ Alex Long suggests (personal communication) that **T5** can be read in such a way as to suggest that human beings also form simple (i.e. non-synthetic, non-metabatic) impressions. However, the passage is supposed to explain how the dogmatists – in particular, the Stoics – distinguish humans from non-rational animals. At a general level this is done by attributing internal reason to the former but not the latter. If rational animals could form simple impressions, then, since all the impressions of rational animals are rational, simple impressions would be a kind of rational impression as well. But then it would seem that the dogmatists attribute internal reason to non-rational animals as well, which is an unacceptable result. Thus, we think that the passage must be read as attributing only synthetic and metabatic impressions to rational creatures. One way to do so is to take “simple” to refer to the generic capacity to form impressions, which indeed is common to both rational and non-rational animals (thus de Harven [2018, pp. 223-4]; cf. Burnyeat [1982, p. 206 n. 33]). A second possibility is that simple impressions are a kind of impression along with synthetic and metabatic impressions, and that the Stoics have children in mind: note that, according to the Stoics, *all* the impressions of immature human beings, because they do not yet possess reason, are non-rational. On this reading, human beings differ from non-rational animals not insofar as they form, at some stage in their development, simple impressions, but insofar as they form, after they have acquired reason, synthetic and metabatic impressions.

be metabatic. To anticipate, we argue that the two terms serve to describe the structure characteristic of rational impressions, in virtue of which they represent propositions.

The first piece of evidence comes from Sextus' argument that the senses alone cannot be criteria of truth. It will help to lay out this passage at length.

[T6] He [a human being] cannot grasp what is true by the senses alone, as we showed before (and will now briefly explain). For they are by nature non-rational (*alogoi*), and not being able to do more than be imprinted by the things that appear, they are useless for the discovery of what is true. For the thing that is to grasp what is true in the underlying objects must not merely be activated (*kineisthai*) whitely (*leukantikôs*) or sweetly (*glukantikôs*), but must also be brought to an impression of such a state of affairs (*pragma*) as *This is white* and *This is sweet*, and likewise in the other cases. But latching on to the corresponding state of affairs is no longer the job of sense-perception; for it is of a nature to grasp only color and flavor and sound – whereas *This is white* and *This is sweet*, not being a color or a flavor, does not fall within the awareness of sense-perception. ... And there has to be synthesis (*suntheseôs*) and memory (*mnêmês*) for the grasp of the underlying objects, such as a human being, a plant, and things like that. For the human being is a synthesis (*sunthesis*) of color with size and shape and certain other peculiarities (*idiômata*), but sense-perception cannot synthesize (*suntheinai*) anything in a memory-like way on account of the fact that the combination (*episunthesin*) is neither a color nor a flavor nor a sound, which are the only things sense-perception is capable of grasping. (*M* 7.344–47; tr. Bett, modified)

Again, Sextus does not mention his target(s) by name. In the course of our discussion of T6, however, we will see that Sextus is presenting what the Epicureans and Stoics take to be at issue in their debate over the rationality of sense-impressions. In particular, in keeping with his skeptical practice, Sextus is invoking an account of the rational / non-rational distinction that is shared by his opponents, in this case the Epicureans and Stoics. The Stoics agree with Sextus' objection here that perception, if it were non-rational in this agreed-upon sense, could not be a criterion of truth. They ultimately deny, however, that perception and sense-impressions are non-rational. The Epicureans, on the other hand, affirm that perception is non-rational, but deny that this entails that it cannot serve as a criterion of truth.

In T6, Sextus argues as follows. First, he tells us that sense-perception, on its own, can only be “activated whitely,” “activated sweetly,” and “likewise in other cases”. It cannot form an

impression that represents a state of affairs such as *This is white* or *This is sweet*.²⁴ Although the text is underdetermined, it is natural to understand the point to be that sense-perception, on its own, can only represent “whiteness” or can only cause a person to be “appeared to whitely,” but cannot represent something as being white or represent that *this is white*. Representing states of affairs, such as *this human being is white*, and predicating a perceptual quality of a human being requires an act of synthesis: the various qualities of a human being – color, size, shape, and “other peculiarities” – must be combined together in order to represent a human being.²⁵ Such a process of synthesis is a necessary condition of representing a human being as possessing one of those qualities and, so, a proposition such as *This human being is white*.

Sextus is not the only source who speaks of synthesis as a rational process whereby various qualities are combined to represent an object, such as a human being. Cicero also presents such a view, in a passage that makes clear that **T6** reflects Stoic theory:

[T7] Such are the things [pleasure and pain] we claim are apprehended by the senses. The next set are just like them, though we don’t claim that these are apprehended by the senses themselves, but by the senses in a certain respect – e.g. *That is white, This is sweet, That is melodious, This is fine-scented, This is rough*. Our apprehension of this set comes from the mind rather than the senses. Next comes: *That is a horse, That is a dog*. Then we get the rest of the series, which combines (*nectens*) more significant things and encapsulates what we might call a filled-out apprehension of things – e.g., *If something is a human it is a mortal animal partaking in reason*. (*Ac.* 2.21; tr. Brittain)

The parallels between **T6** and **T7** are striking.²⁶ First, Cicero’s speaker Lucullus claims that, according to the Stoics, the senses alone do not apprehend things such as *That is white, This is*

²⁴ For the Stoics, these states of affairs (*pragmata*) are sayables (*lekta*) and specifically propositions (*axiômata*): the Stoics standardly describe propositions and sayables as *pragmata*: see e.g. DL 7.57, 65 and further references in Bobzien and Shogry (2020, p. 5 n. 21).

²⁵ Sextus’ picture in **T6** is paralleled in a Chrysippean fragment preserved in Calcidius. Here, to explain the division of labor between the mind and sense-organs, Chrysippus compares the former to a king, and the latter to his subordinates. The comparison seems designed to elucidate the function of the mind as it forms a sense-impression: this is to “understand (*intelligere*) each sense’s affection, and to gather together (*colligere*) their reports” (Calcidius, chapter 220). It is possible that *colligere* is Calcidius’ translation of *suntheinai* from Chrysippus’ Greek original.

²⁶ As noted by Frede (1983, p. 153), Brittain (2006, p. 15 n. 26), de Harven (2018, pp. 224-6), and Shogry (2019, pp. 58-60).

sweet, and other such states of affairs (note that the first two examples Lucullus cites also appear in **T6**). Rather, he tells us, the apprehension of such things comes from the mind rather than the senses. Now, admittedly, Lucullus says that the apprehension (i.e. *comprehensio* / *katalêpsis*) of such things comes from the mind, and not that the *impression* in such cases is formed in the mind. However, it is natural to take the point to be that the senses alone cannot form an impression that represents a state of affairs such as *This is white* or *That is sweet*, to which the mind could then assent and achieve apprehension. The connection between **T6** and **T7** is even stronger, once we note that Lucullus says that the rest of the series of increasingly complex objects of apprehension “combine more significant things”. The clear implicature is that the previous cases, even including *This is white*, involve combination (just of “less significant” things). Thus, we have strong evidence that combination or synthesis is a rational activity and is required to form an impression that represents a state of affairs or proposition. And so this is how we understand Sextus’ claim in **T5** that the Stoics describe the impressions of rational creatures as synthetic.

We turn now to the question of what it means for an impression to be metabatic (**T5**). As far as we are aware, there is no supplementary evidence in our sources to help us, and so we must be speculative.²⁷ The term “metabatic” is formed from *metabasis*, which means transition. In a recent paper, Vanessa de Harven has sketched a promising interpretation of the kind of transition the Stoics could be envisioning here. The proposal is to construe the “metabatic” label as referring to a kind of *inferential transition* on the basis of which each sense-impression is formed.²⁸ In creating a sense-impression, the rational mind “travels” to its stored set of concepts, in order to articulate what is being delivered to it by the sense-organs using the concepts it has acquired over time. Concepts thus form the inferential basis for the mind’s synthesis of the reports of the sense-organs, and for the resulting impression that (e.g.) *This human being is white*. The upshot of this automatic, sub-personal process is one concept being predicated of another, to compose a thought (*noêsis*, DL 7.51) – a state with the relevant complexity to

²⁷ Brittain (2005, p. 173) tentatively suggests that the transition DL mentions as the method whereby the Stoics say we conceive of sayables (*lekta*) and place (7.53) “is perhaps the kind of ‘transition’ alluded to by Sextus in *M.* 8.275-6” [our **T5**]. As Brittain notes, however, it is difficult to see how these two passages line up.

²⁸ de Harven (2018, p. 224). She maintains that, insofar as rational impressions involve the predication of concepts, each rational impression is “inherently inferential”. In presenting de Harven’s proposal, we keep to our terminology. See also Shogry (2019, pp. 38-42), and Shogry (2021, pp. 134-6).

represent some state of affairs or proposition.²⁹ So in describing a rational impression as “metabatic”, or transitional, the Stoics may be pinpointing the inferential mechanism responsible for its predicational structure. Understood this way, the two labels in **T5** are closely intertwined, with “metabatic” serving to characterize the process by which each sense-impression comes to possess the synthetic representational complexity needed to express a state of affairs or proposition.³⁰

Regardless of how exactly we understand the “metabatic” label, however, it is clear that for the Stoics all rational impressions possess a predicational and synthetic structure suitable to represent a state of affairs, i.e. a proposition. By reconstructing this Stoic account of why rational impressions have “propositional content”, we now have on the table a conception of rationality that, as we will see in the next section, is also of interest to the Epicureans.

4.2 Epicureans on the rationality of opinion

In this section we argue that the Epicureans also think that something like synthetic structure is the hallmark of a rational state. To see this, note that in **T6**, Sextus says that, in order for an impression to represent a state of affairs, it must involve synthesis and memory. In context, insisting on synthesis seems to make sense, but the reference to memory might seem out of place. Consider, however, Epicurus’ characterization of perception as non-rational:

²⁹ If they recognize something like a subconscious inference at the root of every one of our perceptual experiences, the Stoics would anticipate some recent developments in contemporary philosophy of perception. Cf. Siegel (2017, p. 17): “The Rationality of Perception says that perceptual experience can arise through covert, silent, unreflective inference. ... It is a commonplace that we sometimes reason in this way to form beliefs, or to strengthen pre-existing ones. The Rationality of Perception says that it is possible for us to reason in this way to form perceptual experiences.”

³⁰ This interpretation is compatible with taking the two labels in **T5** (“synthetic and metabatic”) as a hendiadys: a case where the “and” (*kai*) is epexegetic and carries the meaning “i.e.”. So construed, when the Stoics say that rational impressions are “metabatic” they are not referring to a separate feature from their being “synthetic” but instead further clarifying it: all rational impressions are *composite through inferential transition* or *transformed through synthesis*. We thank an anonymous referee for suggesting this plausible reading of **T5**.

[**T8**] For all perception is non-rational and incapable of receiving memory. For neither is it moved by itself, nor when moved by something else can it add or subtract anything. (DL 10.31)

T8 appears in Epicurus' account of why perception must be included as a criterion of truth (DL 10.31-2): perception is criterial, he argues here, because it is "non-rational and incapable of receiving memory". Unfortunately, we get no elaboration of what it means to say that perception is incapable of receiving memory (*mnêmês oudemias dektikê*), nor of what adding (*prostheinai*) and subtracting (*aphelein*) are such that perception does not do either when moved by something else.

Although **T8** and its surrounding context do not explicitly tell us what adding and subtracting amount to, it is clear that the second sentence is offered as the grounds for the first: because it is neither moved by itself, nor able to add or subtract anything when moved by something else (i.e., when bombarded by images emitted from sense-objects), perception is non-rational and incapable of receiving memory. So it is natural to conclude that adding and subtracting are rational operations that somehow involve memory. Buttressing this conclusion is the characterization of preconceptions (*prolēpseis*) attributed to the Epicurean school shortly after **T8**:

[**T9**] They say the preconception is like a perception or a correct opinion or a conception or a universal stored thought, i.e., a memory, of what has often appeared from the outside. (DL 10.33, tr. LS modified)

T9 is a later doxographical report of the Epicurean view and so less authoritative than the verbatim words of the founder in **T8**.³¹ Even so, **T9**'s invocation of memory to explain the nature

³¹ That being said, there is no reason to doubt the reliability of **T9**. Thus Asmis (1984, p. 62): **T9**'s "list of alternative explanations reflects an attempt by Epicurus' followers to explain Epicurean πρόληψις". Following LS (1987, v.1, p. 87), we translate the occurrence of *katalēpsis* in **T9** as "perception" for two reasons. First, there is no need here to transliterate the term, which is our usual practice when *katalēpsis* is used in Stoic texts (see n. 7), because, for the Epicureans, *katalēpsis* is not a piece of epistemological jargon and does not carry any specialized meaning in their philosophical theory. Second, the translation "perception" helps to bring out (albeit imperfectly) the fact that *katalēpsis* shares a root with *prolēpsis* ("preconception"), and also sits well with the appearance-language that comes at the end of the passage. We thank an anonymous referee for drawing our attention to these important issues in the translation of **T9**.

of a preconception is telling. If a preconception is a memory (*mnêmê*) of a certain kind, it is natural to expect that one instance of something's receiving memory is its receiving preconceptions.³² If that is right, then the "anything" (*ti*) in **T8** should be understood as at least *including* preconceptions as what perception cannot add or subtract. By implicature, then, reason is precisely what *can* add or subtract preconceptions. What emerges from these texts, then, is the idea that perception's forming sense-impressions does not in any way involve the activation of preconceptions: this is one consequence of Epicurus' idea that all perception is incapable of receiving memory and incapable of adding or subtracting anything when something else moves it.³³

How should we understand reason's adding or subtracting a preconception to a non-rational sense-impression? Let's consider the example of the preconception HUMAN (given by our source just after **T9** at DL 10.33). The interaction between the sense-organ and an external object that produces a sense-impression does not, and cannot, in any way involve the preconception HUMAN. One way to think about this is that the sense-impression that results is not in any way affected by a subject's possessing or not possessing the preconception HUMAN.³⁴ It is reason that either adds or subtracts a preconception such as HUMAN to the products of perception, that is, to sense-impressions. Given this, it is quite natural to take adding to be a matter of attributing the preconception HUMAN to what is encoded in the sense-impression, and subtracting to be a matter of excluding the preconception HUMAN from what is encoded in the sense-

³² We agree with LS (1987, v.2, pp. 92-3) that the phrase "i.e., a memory" (*toutesti mnêmê*) serves as a gloss on the phrase "stored thought" which immediately precedes it. The upshot will be that describing a preconception as a "stored thought" or "memory" comes to the same thing. For further discussion of this text, see also Hahmann and Robitzsch (forth., pp. 7-8), Németh (2017, p. 32), Tsouna (2016, p. 164), and Asmis (1984, pp. 63-5), who all agree that **T9** serves to characterize the preconception as a kind of memory.

³³ We do *not* claim that, according to the Epicureans, reason's power to add or subtract is *restricted* to adding or subtracting a preconception. Some texts suggest that the mind adds to perception a belief of a certain kind (e.g. about the external reality of the sense-object: thus SE *M* 7.209 and Lucr., 4.379-386). Our claim here is that preconceptions are *among* the things added or subtracted by the mind in the process of creating an opinion. We do not take ourselves to be offering a general Epicurean theory of how opinion differs from perception.

³⁴ In contemporary parlance, then, Epicurus does not think that perception can be "cognitively penetrated" or otherwise influenced by the mind. See Silins (2019, §2.4) for discussion and references, as well as Siegel (2017, pp. 3-13).

impression.³⁵ Now, the Epicureans assume that each preconception encodes certain content.³⁶ Describing the preconception HUMAN, our source at DL 10.33 refers to it as an outline (*tupos*), and elsewhere it seems to be associated with the content “this kind of shape with a soul” (SE *M* 7.267). So perception, in the formation of a sense-impression, in no way involves such a conception.³⁷ Reason, however, in interpreting the sense-impression, can either attribute the preconception HUMAN to it, producing a mental state whose content is “This is a man”, or it can deny this preconception to it, producing a mental state whose content is “This is not a man”. Thus, the Epicureans think that in this case a mental state resulting from the operation of reason has something like the Stoic notion of synthetic structure.

Epicurus is adamant, however, that the mental state that results from the operation of reason is *not* a sense-impression. Rather, he calls it an opinion (*doxa*). So, in other words, opinions can be created from reason adding or subtracting preconceptions to the deliverances of senses. There are, presumably, *other* ways that opinions can arise (see n. 33), but reason’s deployment of preconceptions is one such way. Furthermore, Epicurus is explicit that the possibility of falsehood arises only with opinions (T2; SE *M* 7.210) and, consistent with this view, he identifies the mis-application of preconceptions as one source of false opinion:

[T10] If in those days we used to express an equivalent view (*tauto ti dianoooumenoi elegomen*), in the terminology which we then employed, to saying that all human error is exclusively of the form that arises in relation to preconceptions and impressions because of the manifold conventions of language... (Epicurus, *On Nature* XXVIII fr. 12 col. III, tr. after Sedley)

Although the lacunose state of the papyrus denies us the immediate context of T10 – as well as the end of the sentence quoted above – there is no indication that Epicurus means to *disavow* the approach of explaining human error and false opinion in terms of mis-applying preconceptions to sense-impressions. On the contrary, Epicurus is here underscoring that his account of human

³⁵ Subtraction is in this case the negation of addition: in subtracting a preconception from a perception, the mind does not remove what is already present in the perception, but instead opts not to add something extra to it. For the Epicurean account of the content of *sense-impressions*, see n. 51 below.

³⁶ We agree with Striker (1974 / 1996, pp. 40-1), that preconceptions have content that is both (1) sentential or belief-like and (2) imagistic. See also Tsouna (2016, pp. 170-1), and Gerson (2009, p. 94).

³⁷ In a further parallel with the Stoics, the Epicureans consider preconceptions as just one kind of conception, alongside others that are not naturally acquired: see DL 10.32 and Tsouna (2016, p. 170).

error has not changed, though earlier he expressed it with different terminology.³⁸ Indeed, we find the same basic view in the texts of later Epicureans as well. The Epicurean Philodemus, writing some 250 years after Epicurus, agrees with the founder of his school that one way of creating false opinions is the mis-predication of preconceptions (*Oec.* col. XX, 1-32 and col. XXI, 1-12). To use Philodemus' example, in seeing a person spending money on luxuries, the perceiver who attaches the preconception GOOD MONEY-MAKER forms the false opinion that "This person is a good money-maker".³⁹

Thus, the structure of Epicurean opinion is similar to the structure of Stoic sense-impressions, and both schools agree that mental states with such structure can be false.⁴⁰ Furthermore, the Stoics and Epicureans share the view that the possibility of falsehood arises with synthesis and concept predication, and converge in thinking that these psychological operations are performed exclusively by reason. They disagree, however, over whether *sense-impressions* are produced by such operations: Epicureans say "no," Stoics say "yes." The crucial task for us now is to examine *why* each school adopts these different views on the rationality of the sense-impression.

4.3 Implications for recently scholarly debate

Before moving on to the fundamental disagreement dividing the Stoics and Epicureans on the rationality of the sense-impression, we pause to note an important upshot that has emerged from our analysis so far.

According to the interpretation advanced in section 4.1, the Stoics posit an intrinsic difference between rational and non-rational impressions. Only rational impressions have synthetic predicational structure and, for this reason, represent propositions. Non-rational

³⁸ Sedley (1973, p. 60) suggests that in **T10** Epicurus "must be thinking especially of the term πρόληψις, which a few years earlier when he wrote the *Letter to Herodotus* he had not yet introduced".

³⁹ See discussion in Tsouna (2016, pp. 204-8). Philodemus seems to innovate over the earlier Epicurean view by introducing preconceptions with an evaluative term: here, GOOD MONEY-MAKER.

⁴⁰ To reiterate, the similarity we emphasize here concerns the *structure* of Epicurean opinions and Stoic sense-impressions. The two mental states likely differ, however, in that Epicurean opinions are, and Stoic sense-impressions are not, doxastic states, i.e. states which involve the subject's assent (see section 2). This dissimilarity is compatible with the similarity in structure that we flag here.

impressions, by contrast, are simple in that they lack the representational complexity required to put the perceiver in touch with an incorporeal state of affairs (*pragma*). In defending these claims, we further developed a common interpretation of Stoic epistemology by offering an explanation of why the Stoics maintain that all and only rational impressions have “propositional content”.

However, this common interpretation has grown more controversial, with several scholars now rejecting the claim of an intrinsic difference between rational and non-rational impressions in Stoic theory. According to this rival view, proposed most recently by Ada Bronowski and Victor Caston, rational impressions are distinguished, not by their representational format and character (as on our picture), but rather by their ability to be subsequently *interpreted, articulated, or decoded* by the rational mind.⁴¹ In particular, this further stage of processing consists in the mind’s application of concepts. Non-rational creatures, by contrast, merely receive sense-impressions and, lacking concepts, do not operate upon them further.⁴² Considered on their own, then, the sense-impressions of rational and non-rational beings do not differ. All impressions are simple representational states, according to this rival view – purely passive changes caused by an encounter with an external sense-object.⁴³ Consequently, what makes an impression rational or non-rational is its subsequent role in the perceiver’s mental life, i.e. whether it receives conceptual articulation or not, and not any intrinsic difference in the complexity of its representational structure.

We take our discussion so far to have provided good reason to question this rival view. Indeed, it is noteworthy that no ancient source for Stoic theory testifies to a distinct stage of “conceptualizing” or “decoding” an impression, subsequent to forming it, as one would expect if the rival view were true. However, we do not wish to press this negative point here, since establishing it satisfactorily would require detailed exegesis of a number of controversial texts, such as DL 7.49 and SE *M* 8.70, and thereby take us far afield.⁴⁴

⁴¹ Caston (forth., pp. 19-26); Bronowski (2019, pp. 99-112) speaks of the mind’s response to impressions as a kind of “decoding” and “articulation”. See also Lesses (1998, p. 7) and Sorabji (1990, p. 209).

⁴² Caston (forth., pp. 30-1); Bronowski (2019, pp. 99-101, 108-112, 205).

⁴³ The passivity of the impression is emphasized especially by Bronowski (2019, pp. 117-118, 185-187).

⁴⁴ However, one text Bronowski cites in favor of the rival view can be dispatched quickly (2019, p. 108). This is Plutarch *St. Rep.* 1055f-1056a, where Chrysippus is reported to claim that impressions are not “self-complete” (*autotelê*) causes of assent. Bronowski argues that the term “self-complete”, as applied by Chrysippus to the impression here, shows that the impression does not express a proposition (*axiôma*), since propositions are described

We do, however, want to note that our analysis has revealed an additional, at least *prima facie*, cost to Bronowski and Caston's interpretation. If their view were correct, then the Stoics and Epicureans would have *no reason* to disagree on the rationality of the sense-impression. In other words, the Stoics could fully accept everything the Epicureans say in describing the sense-impression as *alogon*, and the Epicureans could fully accept everything the Stoics say in describing the sense-impression as *logikê*. The dispute would be entirely terminological. This is because, on Bronowski and Caston's interpretation of the Stoics, an impression counts as rational solely in virtue of being subsequently articulated and operated upon by the mind. However, as our discussion in 4.2 has shown, this is rather how the *Epicureans* understand the activity of reason: *inter alia*, to apply preconceptions and provide structure to "raw" sensory input.⁴⁵ In effect, then, for both schools, all sense-impressions would be on a par with respect to their rationality. The Stoics and Epicureans would converge in taking sense-impressions (1) to arise independently of the mind's activity of concept-application and (2) to succeed in representing the world without need of these rational resources. However, such a view struggles to explain the tenor of our ancient evidence. The fact that the Epicureans and Stoics explicitly disagree on the rationality of the sense-impression – and indeed call attention to this disagreement in polemical contexts (e.g. T4 and Philodemus, *Mus.*, col. 115.26-41) – gives reason to doubt the rival view.

5 The fundamental disagreement

We now turn to the fundamental disagreement, as we see it, between the Stoics and Epicureans that leads each to affirm and deny, respectively, that sense-impressions are rational. To begin we want to note the status of the interpretative arguments that follow. Given the nature of our source

as "self-complete" sayables elsewhere (e.g. at DL 7.63). But Bronowski's inference is too quick, since she conflates two things: (i) being a self-complete cause of assent and (ii) being a self-complete sayable. An impression is neither, but a proposition is (ii). So there is no reason to think that, in denying that impressions cause assent on their own, Chrysippus thereby also denies that impressions express self-complete sayables such as propositions. In fact, Chrysippus clearly presupposes that impressions express propositions in his *Logical Investigations* col. IV, 20-35 and in the report at SE *M* 7.416-21.

⁴⁵ Bronowski notes this feature of Epicurean theory and characterizes it as a break from the Stoics (2019, p. 111 and p. 173 n. 6). However, she fails to see that her description of these distinctively Epicurean commitments applies equally well to her own interpretation of what distinguishes rational from non-rational impressions in Stoic theory.

material, we have no explicit discussion of the philosophical motivations behind each school's adopting their respective conceptions of the sense-impression. Rather, what we have are certain claims about the role sense-impressions play in immediately grounding successful beliefs. What we engage in is a rational reconstruction, employing something like inference to the best explanation, of why they thought sense-impressions must be rational or non-rational to be criterial.

As we understand it, the divergence we have catalogued between the two schools emerges from the following fundamental disagreement. The Epicureans think that in order for sense-impressions to serve as criteria of truth they must be completely untainted by reason. They think this because they see no way to guarantee that any automatic and subliminal operation of the mind on the deliverances of the senses does not introduce error. The Stoics, on the other hand, think that only states with synthetic, predicational structure could serve as criteria of truth, because truths – the very thing of which sense-impressions are supposed to be criteria – also have such structure.

5.1 Epicureans on why sense-impressions must be non-rational

Let's begin with the Epicureans. Recall the central points outlined above: (1) the Epicureans take sense-impressions to be non-rational; (2) sense-impressions are always true; (3) the Epicureans think that opinions (*doxai*) can be created by reason's adding or subtracting preconceptions to sense-impressions; and (4) opinions can be true or false. Much of the scholarly debate has focused on why the Epicureans accept (2).⁴⁶ One difficulty for understanding this claim is that sense-impressions, as the Epicureans conceive of them, do not have the kind of complexity that many philosophers assume is necessary for a mental state to be truth-apt, let alone always true. Consider, for example, Plato's and Aristotle's conceptions of truth:

[T11] [A true statement] says the things that are, that they are (Plato, *Sophist* 263b4-5).

[T12] To say of what is that it is, and of what is not that it is not, is true (Aristotle, *Metaphysics* 1011b26–28).

⁴⁶ See e.g. Striker (1977 / 1996), Taylor (1980), Everson (1990), Gerson (2009, pp. 94-99), and Vogt (2016).

Both conceptions identify as a minimal condition for a mental state's being true that it *say* (*legein*) something. However, since, on the Epicurean view, sense-impressions do not have the structure of statements, it seems that they do not have the requisite structure for being true (or false). These kinds of observations have led interpreters to develop various accounts of what the Epicureans could have meant by "true" in this context.⁴⁷

We are not especially interested in this issue, as our focus is on why the Epicureans think that sense-impressions must be non-rational if they are to be criterial. However exactly we understand the sense in which the Epicureans take all sense-impression to be true, for our purposes the crucial point is the following. Epicurus lays out conditions for the truth and falsity of opinions, which also seem to double as, or at least suggest, rational procedures that can be followed to verify the truth or falsity of an opinion.⁴⁸ Diogenes Laertius reports this as follows:

[T13] For if [an opinion] is confirmed (*epimarturêtai*) or not contradicted (*mê antimarturêtai*), [by the criteria] it is true. But if it is not confirmed or is contradicted, it turns out false. (10.34; cf. SE *M* 7.215)

One of the more difficult aspects of Epicurus' views in this area is to understand how these could be conditions for an opinion's simply being true or false, as opposed to conditions for a person's being justified in believing that an opinion is true or false. That is, if sense-impressions' confirming or not contradicting an opinion is what *makes* the opinion true, it seems that, absent any relevant sense-impressions for or against a given proposition *p*, *p* is neither true nor false. If this is what Epicurus means, he seems to be advancing a conception of truth and falsity akin to current notions of truth and falsity in intuitionistic logic, where true means something like "proved" and false means something like "disproven."⁴⁹ Although we cannot rule out that Epicurus was attracted to such a view, we think it is unlikely. It seems more likely that Epicurus is giving conditions, not for an opinion's *being* true or false, but for *determining* whether an

⁴⁷ See previous note.

⁴⁸ Striker (1974 / 1996, pp. 42-51); Asmis (1984, pp. 143-150); LS (1987, v.1, pp. 94-6).

⁴⁹ See Moschovakis (2018).

opinion is true or false.⁵⁰ So, we will assume that **T13** provides Epicurus' account of how to determine whether an opinion is true.

Epicurus recommends, then, that to determine whether an opinion such as "This is a man" is true, one must determine whether it is confirmed or not contradicted by a sense-impression. So, if you have a sense-impression that encodes the information "shape of this kind having soul" you can justifiably form the opinion that "This is a man".⁵¹ It is, of course, difficult to understand why the opinion that "this is a man" could be warranted solely by a sense-impression that does not contradict it, since presumably an infinite number of opinions will not be contradicted by any given sense-impression.⁵² Perhaps anticipating such a concern, Epicurus often speaks as if we are justified in possessing opinions that are not contradicted by the *sum total* of our sense-impressions. For example, in developing his theory of images (*eidôla*), Epicurus maintains that "none of these [opinions] is contradicted by the senses, providing one considers the clear facts in a certain way" (DL 10.48). This at least suggests that it is not a single sense-impression that constitutes the confirmatory or contradictory base of an opinion. Nevertheless, even if it is *all* of a subject's sense-impressions that do the work, there still will be many opinions that are not confirmed but also not contradicted by their sense-impressions, and we might think people are not justified in holding such opinions. Indeed, we will suggest that the Stoics were partially motivated to develop their conception of sense-impressions in response to such a worry.

With this discussion in hand, we are now in a position to reconstruct the Epicurean motivation for conceiving of sense-impressions as non-rational. Given that we determine whether an opinion is true by determining whether it is confirmed or not contradicted by our

⁵⁰ This interpretation is perhaps supported by Sextus, who attributes to Epicurus the view that "true is that which is as it is said to be" (M 8.9). See detailed discussion in Bown (2016).

⁵¹ For a nice overview of the scholarly debate over exactly what information is encoded by Epicurean sense-impressions, see Bown (2016, p. 486 n. 45). Our interpretation is consistent with all the views Bown surveys, including that of O'Keefe (1997, pp. 131-4), who denies that Epicurean sense-impressions have any content at all. If O'Keefe is right, then opinion differs from sense-impressions not only in being rational but also in being contentful. However, we find convincing the general objections Bown raises against O'Keefe's proposal. See also Taylor (1980, pp. 111-3).

⁵² Striker (1974 / 1996, pp. 42-8) argues that these opinions will be either *possibly* true or false.

sense-impressions, those sense-impressions must be error-free.⁵³ If there were errors in that basic stockpile of sense-impressions, then no matter how diligent one were in referring one's opinions to it, this procedure could not guarantee a true outcome. But given that, on the conception of rationality shared with the Stoics, the Epicureans think the operation of reason introduces the possibility of error, if there were an unconscious application of preconceptions to sense-impressions *before* one began forming opinions on their basis, there would be no way to guarantee that that basic stockpile did not possess faulty states. In other words, if reason is to operate on a stockpile of states in such a way that only true states result, that original stockpile must itself be unadulterated by any (even unconscious) applications of reason. Thus, if sense-impressions are going to give unmediated access to reality, on which reason can operate, sense-impressions must be free of any error that reason might introduce. The Epicureans thus conclude that sense-impressions must be non-rational, if they are to play a criterial role.

5.2 Stoics on why sense-impressions must be rational

We now reconstruct the Stoic motivation for conceiving of sense-impressions as rational states. Recall that the Stoics think the key distinctive feature of rational states is that they have synthetic or predicational structure and thus represent propositions. The question, then, is why they thought that we must understand rational states as having a radically different intrinsic structure from that of non-rational states. That is, why not think – as the Epicureans do – that all impressions have the same intrinsic structure, but that rational animals have a special power – reason – that enables them to interpret and operate on their impressions in ways that non-rational animals cannot?

To understand their position, recall that the Stoics think beliefs verified by the criteria of truth have a special status, indicated with the label *katalêpsis*. What the Stoics think we grasp in achieving *katalêpsis* is a proposition. Thus the anonymous Stoic author of P.Herc. 1020 (likely Chrysippus) describes wise people as “self-sufficient in grasping propositions”.⁵⁴ Furthermore, in

⁵³ Thus in *KD* 24, Epicurus says that if you fail to “distinguish between (i) an opinion made in accordance with what is expected and (ii) that which is already present in accordance with the perception... you will confuse also the remaining perceptions with your futile opinion, so that you will throw out every criterion” (tr. after Asmis).

⁵⁴ Col. 110, lines 15-17: καταλ(η)πτικοὶ ὄντες ἀ(ξι)ωμάτων αὐτά(ρκ)ως.

other sources we find the following examples of the contents of *katalêpsis*: *Fifty is few* (SE *M* 7.418, attributed to Chrysippus), and *This is Helen* (SE *M* 7.253-7, attributed to “younger Stoics”).⁵⁵ The school also maintains that it is possible to attain *katalêpsis* of theological facts (as the Stoics see them), such as *The gods exist* and *The gods are providential* (DL 7.52). And yet another report from Sextus confirms that, in general, the objects of *katalêpsis* are incorporeal sayables:

[T14] So then, the corporeal is not learned, and especially so in the view of the Stoics: for sayables are the things that are learned, and sayables are not corporeal. (SE *M* 11.224-5)

In coming to learn physics, for example, one does not learn a particular body or anything bodily at all, but rather sayables (paradigmatically, propositions) *about* bodies, e.g. *Bodies can be blended* or *Air is a body*.

It is clear, then, that *katalêpsis* is of propositions. The Stoics in turn analyze *katalêpsis* as assent to a kataleptic impression (see e.g. SE *PH* 3.241; *M* 8.397, 11.182). We also know that they think kataleptic impressions, insofar as they are rational impressions, express propositions. The question then is why they think that, in order for an impression to be criterial for the belief that *p*, the impression must express the proposition *p* in virtue of its rational structure. A photograph, for example, does not have such structure, and so is not a rational state on the Stoic conception, yet we nevertheless might think that the picture could provide support or evidence for certain propositions.

We think it plausible that the Stoics accept something like the following train of thought. If we were to think that impressions do *not* have synthetic or predicational structure, then an impression could not provide support specifically for the proposition *p* over a range of alternatives. In some cases this might seem innocuous. If, for example, an impression merely represents something blue, but does not represent the table as being blue, then it confirms the proposition *the table is blue* as much as it does the proposition *the table is turquoise* or even *this is a table*, *this is a blue thing*, and so on. In other cases, however, the consequences could be much more problematic. Suppose you have a sense-impression that represents Brutus holding a

⁵⁵ For further discussion of SE *M* 7.418 and its role in Chrysippus’s account of the sorites, see Vogt (forth.) and Bobzien (2002). Presumably, Chrysippus assumes that one achieves *katalêpsis* of *Fifty is few* only when the conversational context renders this proposition true: *Fifty is few* is true of raindrops, for instance, but not donuts.

knife whose blade is in Caesar.⁵⁶ You might think that this supports the proposition *Brutus stabbed Caesar*. However, it is entirely consistent with this impression that Brutus pulled a dagger out of Caesar. But here we have two incompatible propositions: *Brutus is stabbing Caesar* and *Brutus is pulling a dagger out of Caesar*. To see the incompatibility, the former is inconsistent while the latter is consistent with the proposition *Brutus tried to save Caesar's life*. In sum, if sense-impressions do not express particular propositions, they not only do not support specific propositions over a range of alternatives, but can even support incompatible propositions. But if that is the case, then sense-impressions cannot play the criterial role they must.

The foregoing is admittedly rather removed from our Stoic texts. To see that it is a plausible reconstruction of their thinking, consider a central strand of their debate with the Academic skeptics. According to the Stoics, the criterial kataleptic impression (1) comes from what is, and (2) has been stamped and sealed in exact accordance with that which is, (3) of such a sort that it could not have come from what is not (SE M 7.248). To deny the existence of these kataleptic impressions, the core Academic contention is that, though many impressions meet the first two clauses, none meets all three. Thus the Academics draw attention to (allegedly) perceptually indistinguishable objects, such as the twins Castor and Pollux. The Academics argue that the impression that *this is Castor*, which as a matter of fact is caused by Castor (i.e. meets clause (1)) and represents Castor exactly as he is (i.e. meets clause (2)), nevertheless *could have been caused* by Pollux. Thus, the Academics allege, such an impression is not “of such a kind as could not have come from what is not.” This strategy seems deliberately chosen to exploit the Stoic assumption that if an impression could support two incompatible propositions – i.e. *this is Castor* and *not: this is Castor* – then it cannot be criterial for either (cf. Cicero, *Ac.* 2.34). After all, it was Zeno himself who added the third clause to the definition of the kataleptic impression, to underscore his commitment to the claim that “no impression would be kataleptic, if one that came from what is was such that there could be one just like it from what is not” (Cicero, *Ac.* 2.77, tr. Brittain). This commitment is crucial for understanding the Stoic rationale for requiring a kataleptic impression to express a specific proposition in order to be criterial: an impression that supports *p* no more than *not-p* cannot be relied upon for epistemic success. In other words, there can be no indeterminacy in the proposition expressed by a given criterial

⁵⁶ We adapt this example from Taylor (1980, pp. 119-21).

sense-impression. But this requirement can be met only if such criterial sense-impressions are rational states.

This reconstruction chimes well with the Stoics' denial of epistemic success (in particular, the achievement of *epistêmê*) to souls lacking reason (Galen, *PHP* 5.5.35). The Stoics think that there is something distinctive about the representational states generated by rational creatures, which entitles these -- and not those of non-rational creatures -- to support *epistêmê*. In particular, there must be something distinctive about the *sense-impressions* of rational creatures, since only rational creatures attain *epistêmê* and the Stoics recognize a kind of *epistêmonikê aisthêsis* (Philodemus, *Mus.* col. 34.1-8 and 115.26-41).⁵⁷ This distinctive feature is of course the one we identified above in section 4: synthetic or predicational structure. The minds of non-rational creatures cannot generate perceptual representations with the predicational complexity required to "say" propositions (cf. Chrysippus in Aëtius, 4.12.1-5). So since their impressions express no propositions at all, *a fortiori* their impressions cannot support *p* over any alternative, and so cannot ground epistemic success with respect to *p*.

5.3 Echoes in recent epistemology

As we have interpreted the Epicurean and Stoic positions, neither is outlandish. Indeed, the debate between the Epicureans and Stoics bears affinities to a debate that played out over epistemic foundationalism during the 20th century (although that debate primarily concerned *knowledge*, and we avoid that language for the reasons given in section 2). In his seminal paper, "The Raft and the Pyramid," Ernest Sosa presents an anti-foundationalist argument that we think strongly echoes the structure of the debate between the Epicureans and the Stoics over the rationality of sense-impressions. The argument is a proof by cases.⁵⁸ The disjunctive premise is

⁵⁷ The phrase is used by Philodemus to characterize the position of Diogenes of Babylon, scholar of the Stoa in the 2nd c. BCE. Philodemus is probably not invoking the precise Stoic notion of *aisthêsis* (see section 2 above) but instead a looser notion on which it includes *phantasia* (as we also see in **T2** and **T6**).

⁵⁸ It should be noted that Sosa himself does not endorse the argument and, indeed, offers several objections to it (some of which, in fact, echo points we have considered here). Rather, what Sosa takes himself to be doing is distilling an argument that coherentists raise against foundationalists.

that all mental states either do or do not incorporate a propositional attitude. The argument then runs as follows:

- 1) First case: if a mental state incorporates a propositional attitude, it does not afford direct contact with reality.
 - a) If a mental state does not afford direct contact with reality, it cannot guarantee against error.
 - b) If a mental state cannot guarantee against error, it cannot serve as a foundation for knowledge.
 - c) Thus, if a mental state incorporates a propositional attitude, it cannot serve as a foundation for knowledge.

- 2) Second case: if a mental state does not incorporate a propositional attitude, it cannot provide support for any proposition.
 - a) If a mental state cannot provide support for any proposition, it cannot serve as a foundation for knowledge.
 - b) Thus, if a mental state does not incorporate a propositional attitude, it cannot serve as a foundation for knowledge.

- 3) Therefore, no mental state can serve as a foundation for knowledge.

We do not think that either the Stoics or Epicureans should be taken to endorse (even tacitly) this argument. Rather, we think it is helpful to understand each school as accepting one of the horns and thinking that the other school is impaled on the other horn. Furthermore, although the argument applies generally to what kinds of mental states can serve as “foundations for knowledge,” its connection to Epicurean and Stoic epistemology is limited only to their conceptions of sense-impressions and what sense-impressions must be like to serve as criteria of truth. That is, we do not think that the Epicureans and Stoics would think that the considerations adduced here are relevant to criteria of truth in general but, rather, only specifically concerning the criterial status of sense-impressions.

As we interpret them, the Epicureans agree with (1), taking it to skewer the Stoic position, and reject (2). That is, they think that, if sense-impressions incorporated propositional attitudes, then they could not serve as criteria of truth. They thus reject the idea that mental states that do not incorporate a propositional attitude cannot provide support for any proposition. Conversely, the Stoics, as we interpret them, agree with (2), taking it to skewer the Epicurean position, and reject (1). To reject (1) they deny (1a) in particular, and argue that there are certain

sense-impressions – kataleptic sense-impressions – that, despite incorporating a propositional attitude, nevertheless are guaranteed against error.

6 Conclusion

In closing we want to return to the standard view we began with in the introduction. On our interpretation of Epicurean and Stoic epistemology, the standard view is not straightforwardly false. Both schools think that sense-impressions are the basic states in virtue of which we are aware of external objects in our surroundings, and the Epicureans do say that such states are always true while the Stoics say that such states are sometimes false. Nevertheless, we think that the standard view obscures the fact that the schools conceive of the nature of sense-impressions in radically different ways: the Epicureans think that sense-impressions are non-rational while the Stoics think they are rational. The standard view, in turn, obscures the fact that Epicurean epistemology incorporates a psychological state – opinion – that is at least structurally similar to Stoic sense-impressions, and that the Epicureans think can be false. Thus, the central problem with the standard view, as we understand it, is that it obscures the basic Epicurean and Stoic agreement that the possibility of falsehood arises with concept application and the basic disagreement as being over when in our epistemic lives concept application occurs.

We also think that focusing on the respective claims about the possible truth and falsity of sense-impressions promotes a tendency to underestimate the philosophical attractiveness of the Epicurean conception of sense-impressions. Since it just seems obviously false that all our sense-impressions are true, people take the Epicurean view to be wildly at odds with “common sense.”⁵⁹ But now that we have seen what the Epicureans think sense-impressions are *for* – that is, what criterial role they afford sense-impressions – we can understand their motivation for insisting that they must be non-rational. Indeed, we can understand the Epicureans as posing the following question to the Stoics: “for your account to work, you must think that there is some automatic, sub-personal operation of rational synthesis that is never in error. Isn’t that just magical thinking (especially given that you think we form opinions incorrectly all the time)?” This is a powerful objection against the Stoics. And so by focusing on the differing views of the Epicureans and Stoics on the rationality of sense-impressions, we can appreciate that the Stoics

⁵⁹ See n. 2.

are not clearly in the philosophically superior position. To be sure, the Epicurean account is not without its difficulties. The Stoics, as we have interpreted them here, could also level a charge of magical thinking against them: “for your account to work, you must think that a sense-impression justifies believing one proposition over another. But since sense-impressions are non-rational, they do not represent any propositions at all and so cannot adjudicate *between* competing propositions.” So just as others have seen in the Stoic-skeptic debates concerning the kataleptic impression, we view the Stoic-Epicurean dispute over the rationality of perception as more of a philosophical stand-off, owing to the plausible motivations underlying their respective epistemological positions.

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References, ancient

- Aëtius. *Placita*, in *Doxographi Graeci*. Ed. H. Diels. Berlin: Reimer. 1879.
- Anonymous Stoic. *Opera Incerta: PHerc. 1020, col. 104-112*. Eds. M. Alessandrelli, and G. Ranocchia. Rome: Istituto per il Lessico Intellettuale Europeo e Storia delle Idee. 2017.
- Aristotle. *Analytica Posteriora*. Eds. W. D. Ross and L. Minio-Paluello. Oxford: Oxford Classical Texts. 1964. [APo.]
- Aristotle. *Metaphysica*. Ed. W. Jaeger. Oxford: Oxford Classical Texts. 1957.
- Calcidius. *On Plato's Timaeus*. Ed. J. Magee. Cambridge: Harvard University Press. 2016.
- Chrysippus. *Logical Investigations*. Ed. L. Marrone, 'Le *Questioni Logici* di Crisippo (PHerc 307)'. *Cronache Ercolanesi* 27 (1997): 83-100.
- Cicero. *Academicorum reliquiae cum Lucullo*. Ed. O. Plasberg. Leipzig: Teubner. 1922. [Ac.]
- Cicero. *De Natura Deorum*. Ed. W. Ax. Leipzig: Teubner. 1933.
- Diogenes Laertius. *Lives of Eminent Philosophers*. Ed. T. Dorandi. Cambridge: Cambridge University Press. 2013. [DL]
- Diogenes of Oinoanda. *The Epicurean Inscription*. Ed. M. F. Smith. Naples: Bibliopolis. 1993.
- Epicurus. *Epistula ad Herodotum*, in *Epicuro: Opere*. Ed. G. Arrighetti. Turin: Giulio Einaudi Editore. 1973. [Ep. Her.]
- Epicurus. *Epistula ad Menoeceum*, in *ibid.* [Ep. Men.]
- Epicurus. *Epistula ad Pythoclem*, in *ibid.* [Ep. Pyth.]
- Epicurus. *Ratae Sententiae (Kuriai Doxai)*, in *ibid.* [KD]
- Epicurus. *On Nature*. Ed. D. Sedley, "Epicurus, *On Nature*, Book XXVIII". *Cronache Ercolanesi* 3 (1973): 5-83.
- Galen. *De Placitis Hippocratis et Platonis*. Ed. P. de Lacy. Berlin: Akademie Verlag. 1978-80. [PHP]
- Lucretius. *De Rerum Natura*. Ed. C. Bailey. Oxford: Clarendon. 1921. [Lucret.]
- Plato. *Phaedo*, in *Platonis Opera I*. Eds. E. Duke, W. Hicken, W. Nicoll, D. Robison, and J. Strachan. Oxford: Oxford Classical Texts. 1995.
- Plato. *Sophist*, in *ibid.*
- Plato. *Theaetetus*, in *ibid.*
- Plutarch. *Adversus Colotem*. Eds. M. Pohlenz and R. Westman. Leipzig: Teubner. 1952. [Ad. Col.]

- Plutarch. *De Stoicorum Repugnantiis*. Eds. M. Pohlenz and R. Westman. Leipzig: Teubner. 1952. [*St. Rep.*]
- Philodemus. *On Music*. Ed. D. Delattre. Paris: Belles Lettres. 2007. [*Mus.*]
- Philodemus. *On Property Management*. Ed. V. Tsouna. Atlanta: Society of Biblical Literature. 2013. [*Oec.*]
- Porphry. *De Abstinentia*. Eds. J. Bouffartigue, M. Patillon, and A.P. Segonds. Paris: Belles Lettres. 1977-95. [*Ab.*]
- Sextus Empiricus. *Adversus Mathematicos*. Eds. H. Mutschmann and J. Mau. Leipzig: Teubner. 1914-61. [*SE M*]
- Sextus Empiricus. *Pyrrhoniae Hypotyposes*. Eds. H. Mutschmann and J. Mau. Leipzig: Teubner. 1914-61. [*SE PH*]
- Stobaeus. *Eclogae physicae et ethicae*. Ed. C. Wachsmuth. Berlin: Weidmannsche Buchhandlung. 1884. [*Stob., Ecl.*]

References, contemporary

- Annas, J. (1990). “Stoic Epistemology,” in S. Everson (ed.), *Epistemology: Companions to Ancient Thought 1*. Cambridge: Cambridge University Press. 184–203.
- von Arnim, J. (1903). *Stoicorum Veterum Fragmenta*. Leipzig: Teubner. [SVF]
- Asmis, E. (1999). “Epicurean Epistemology”, in K. Algra, J. Barnes, J. Mansfeld, and M. Schofield (eds.), *The Cambridge History of Hellenistic Philosophy*. Cambridge: Cambridge University Press. 260-294.
- Asmis, E. (1984). *Epicurus’ Scientific Method*. Ithaca: Cornell University Press.
- Bett, R. (2005). *Sextus Empiricus: Against the Logicians*. Cambridge: Cambridge University Press.
- Bobzien, S. and Shogry, S. (2020). “Stoic Logic and Multiple Generality”. *Philosophers’ Imprint* 20 (31): 1-36.
- Bobzien, S. (2002). “Chrysippus and the Epistemic Theory of Vagueness”. *Proceedings of the Aristotelian Society* 102: 217-238.
- Bown, A. (2016). “Epicurus on Truth and Falsehood”. *Phronesis* 61: 463-503.
- Brittain, C. (2014). “The Compulsions of Stoic Assent,” in M. K. Lee (ed.), *Strategies of Argument: Essays in Ancient Ethics, Epistemology, and Logic*. Oxford: Oxford University Press. 332–55.
- Brittain, C. (2006). *Cicero: On Academic Scepticism*. Indianapolis: Hackett.
- Brittain, C. (2005). “Common sense: concepts, definition and meaning in and out of the Stoa”, in D. Frede and B. Inwood (eds.), *Language and Learning: Philosophy of Language in the Hellenistic Age*. Cambridge: Cambridge University Press. 164-209.
- Bronowski, A. (2019). *The Stoics on Lekta: All There is to Say*. Oxford: Oxford University Press.
- Brunschwig, J. (1988). “Sextus Empiricus on the *kritêrion*: the skeptic as conceptual legatee”, in J. Dillon and A. A. Long (eds.), *The Question of ‘Eclecticism’*. Berkeley: University of California Press. 145–75.
- Burnyeat, M. (1990). *The Theaetetus of Plato, with a Translation by M. J. Levett*. Indianapolis: Hackett.

- Burnyeat, M. (1982). "The origins of non-deductive inference", in J. Barnes, J. Brunschwig, M. Burnyeat and M. Schofield (eds.), *Science and Speculation: Studies in Hellenistic Theory and Practice*. Cambridge: Cambridge University Press. 193-238.
- Burnyeat, M. (1976). "Plato on the Grammar of Perceiving". *Classical Quarterly*. 26 (1): 29–51.
- Caston, V. (Forthcoming). "The Stoics on Mental Representation", in J. Klein and N. Powers (eds.), *The Oxford Handbook in Hellenistic Philosophy*. Oxford: Oxford University Press.
- Everson, S. (1990). "Epicurus on the truth of the senses", in Everson, S. (ed.), *Companions to ancient thought 1: Epistemology*. Cambridge: Cambridge University Press. 161–183.
- Frede, M. (1999). "Stoic Epistemology", in K. Algra, J. Barnes, J. Mansfeld, and M. Schofield (eds.), *The Cambridge History of Hellenistic Philosophy*. Cambridge: Cambridge University Press. 295-322.
- Frede, M. (1987). *Essays in Ancient Philosophy*. Minneapolis: University of Minnesota Press.
- Frede, M. (1983). "Stoics and Skeptics on Clear and Distinct Impressions", in M. Burnyeat (ed.), *The Skeptical Tradition*. Berkeley: University of California Press. 65–93. Reprinted in Frede (1987): 151–76.
- Gerson, L. P. (2009). *Ancient Epistemology*. Cambridge: Cambridge University Press.
- Gourinat, J-B. (2013). "Le discours intérieur de l'âme dans la philosophie stoïcienne". *Chôra* 11: 11-22.
- Hahmann, A. and Robitzsch, J. M. (Forthcoming). "Epicurus' Non-Propositional Theory of Truth". *Mnemosyne*.
- de Harven, V. (2018). "Rational Impressions and the Stoic Philosophy of Mind", in J. Sisko (ed.), *Philosophy of Mind in Antiquity*. Oxford: Routledge. 215–235.
- Inwood, B. and Gerson, L. P. (1997). *Hellenistic Philosophy: Introductory Readings*. Indianapolis: Hackett.
- Lesses, G. (1998). "Content, Cause, and Stoic Impressions." *Phronesis* 43: 1–25.
- Long, A.A. and Sedley, D. (1987). *The Hellenistic Philosophers*. Cambridge: Cambridge University Press. [LS]
- Long, A. A. (2002). "Zeno's Epistemology and Plato's *Theaetetus*." In T. Scaltsas, and A. S. Mason (eds.), *Zeno of Citium and His Legacy: The Philosophy of Zeno*. Larnaca: Pierides Foundation. 115–30.

- Moschovakis, J. (2018). "Intuitionistic Logic". *The Stanford Encyclopedia of Philosophy*. Edward N. Zalta (ed.), <<https://plato.stanford.edu/archives/win2018/entries/logic-intuitionistic/>>.
- Moss, J. and Schwab, W. (2019). "The Birth of Belief". *Journal of the History of Philosophy* 57 (1): 1-32.
- Németh, A. (2017). *Epicurus on the Self*. Oxford: Routledge.
- O'Keefe, T. (1997). "The Ontological Status of Sensible Qualities for Democritus and Epicurus". *Ancient Philosophy* 17: 119-34.
- Schwab, W. (Manuscript). "Non-perceptual kataleptic impressions in Stoicism".
- Sedley, D. (2002). "Zeno's Definition of *phantasia katalêptikê*" in T. Scaltsas and A. Mason (eds.), *The Philosophy of Zeno: Zeno of Citium and his Legacy*. Larnaca: Pierides Foundation. 137-54.
- Shogry, S. (2021). "The Stoic Appeal to Expertise: Platonic Echoes in the Reply to Indistinguishability". *Apeiron* 54 (2): 129-159.
- Shogry, S. (2019). "What Do Our Impressions Say? The Stoic Theory of Perceptual Content and Belief Formation". *Apeiron* 52 (1): 29-63.
- Siegel, S. (2017). *The Rationality of Perception*. Oxford: Oxford University Press.
- Silins, N. (2019). "Perceptual Experience and Perceptual Justification," *The Stanford Encyclopedia of Philosophy* (Summer 2019 edition), E. Zalta (ed.), <<https://plato.stanford.edu/archives/sum2019/entries/perception-justification/>>.
- Smith, M. F. (2001). *Lucretius: On the Nature of Things*. Indianapolis: Hackett.
- Sorabji, R. (1990). "Perceptual Content in the Stoics." *Phronesis* 35: 307–314.
- Sosa, E. (1980). "The Raft and the Pyramid". *Midwest Studies in Philosophy* 5: 3–26.
- Striker, G. (1996). *Essays on Hellenistic Epistemology and Ethics*. Cambridge: Cambridge University Press.
- Striker, G. (1990). "The Problem of the Criterion", in S. Everson (ed.), *Epistemology*. Cambridge: Cambridge University Press. 143–60.
- Striker, G. (1977). "Epicurus on the Truth of Sense-Impressions". *Archiv für Geschichte der Philosophie* 59: 125-42. Reprinted in Striker (1996): 77-91.
- Striker, G. (1974). "κριτήριον τῆς ἀληθείας". *Nachrichten der Akademie der Wissenschaften zu Göttingen, I. Phil.-hist. Klasse* 2: 48–110. Translated into English and reprinted in Striker (1996): 22-76.

- Taylor, C. C. W. (1980). ““All Perceptions are True””, in J. Barnes, M. Burnyeat, and M. Schofield (eds.), *Doubt and Dogmatism*. Oxford: Oxford University Press. 105–124.
- Tsouana, V. (2018). “Epicurean Dreams”. *Elenchos* 39 (2): 231-256.
- Tsouana, V. (2016). “Epicurean Preconceptions”. *Phronesis* 61: 160-221.
- Verde, F. (2018). “Ancora Sullo Statuto Veritativo della Sensazione in Epicuro”. *Lexicon Philosophicum*. Special Issue: 80-104.
- Vogt, K.M. (Forthcoming). “Vagueness and Kataleptic Impressions”. *Supplementary Volume of the Proceedings of the Aristotelian Society*.
- Vogt, K.M. (2016). “All Sense-Perceptions are True: Epicurean Responses to Skepticism and Relativism”, in Lezra, J. and Blake, L. (eds.), *Lucretius and Modernity*. New York: Palgrave. 145-159.
- Vogt, K.M. (2012). *Belief and Truth: A Skeptic Reading of Plato*. Oxford: Oxford University Press.
- Walsh, P. G. (1998). *Cicero: The Nature of the Gods*. Oxford: Oxford University Press.