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# Enduring senses

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## Abstract

The meanings of words seem to change over time. But while there is a growing body of literature in linguistics and philosophy about meaning change, there has been little discussion about the *metaphysical* underpinnings of meaning change. The central aim of this paper is to push this discussion forward by surveying the terrain and advocating for a particular metaphysical picture. In so doing, we hope to clarify various aspects of the nature of meaning change, as well as prompt future philosophical investigation into this topic. More specifically, this paper has two parts. The first, broadly exploratory, part surveys various metaphysical accounts of meaning change. The goal here is to lay out the terrain, thereby highlighting some key choice points. Then, in the second part, after critiquing Prosser's (Philosophy Phenomenol Res 100(3):657–676, 2020) exdurantism about 'mental files', we sketch and defend the *enduring senses view* of meaning change.

**Keywords** Meaning change · Persistence · Endurance · Fregean senses · Material objects

It is clear that the meanings of words can change over time. 'Computer', for example, once meant someone who performed mathematical operations, though it now refers to the device people use to carry computations out. Similarly, 'meat' formerly referred to food in general, though this is no longer the case—we wouldn't accuse a vegetarian of breaking their strict 'no meat' diet if we saw them chomping down on a carrot. And, not that long ago, a salad was taken to be a cold dish primarily composed of green, leafy vegetables. However, we now use 'salad' to pick out 'various warm, leaf-free concoctions' (Dorr & Hawthorne, 2014, p. 284). In fact, one would be hard-pressed

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to find a word of English the meaning of which has not somehow changed as the language has evolved.

Thus the following is a datum: (meaning) shift happens. And this phenomenon deserves further elucidation. Thankfully, there is some relevant literature. Within linguistics, there is a wide body of work discussing how meaning change takes place; for example, see Crystal (2006), McMahon (1994), and Radford et al (1999). There have also been some recent attempts to introduce philosophical explanations of meaning change; for example, Dorr and Hawthorne (2014) discuss the possibility of *temporal plasticity* of meaning, while Cappelen (2018) brings up meaning change in the context of conceptual engineering. However, there has been little discussion about the *metaphysical* underpinnings of meaning change. The exception here is Prosser (2020), who, while not strictly discussing meaning change, is concerned with diachronic sameness of ‘modes of presentation’.<sup>1</sup>

The central aim of this paper is to push this discussion forward. In so doing, we hope to clarify various aspects of the nature of meaning change, as well as prompt future philosophical investigation into this topic.

This paper has two parts. The first is broadly exploratory, being something like a survey of various metaphysical accounts of meaning change. Our goal here is to lay out the terrain and highlight some key choice points. To do so, we begin by spelling out two possible forms of meaning change: replacement and persistence. We then briefly look at error theoretic approaches, which reject the idea of (substantive) meaning change altogether. Finally, taking a cue from three families of views metaphysicians have offered concerning material objects persistence, we sketch three analogous views about the persistence of meaning—meaning perdurance, meaning exdurance, and meaning endurance—all of which are *prima facie* plausible ways to think about the metaphysics of meaning change.

Building off of this, in the second part, we sketch and defend a particular version of meaning endurantism. We start by first examining Prosser’s (2020) recent defense of meaning exdurantism. Considering and rebutting the arguments he makes neatly sets up our *enduring senses view*. After spelling out the commitments of the view, we close by defending it from some objections—including some pre-emptively suggested by Prosser.

Before turning to the central discussion, it is useful to spell out two background assumptions that we will be working with. The first is that we take meanings to be useful for making sense of what we might call ‘samesaying’. The basic idea here is that when someone uses a word to mean something, there is something shared—meaning—that allows them and their interlocutors to be talking about the same thing. As Schroeter puts it:

A primary semantic function of proper names, common nouns or predicates is to ensure that all parties to a conversation pick out the very same subject matter with these words. Sameness of meaning must somehow guarantee sameness of

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<sup>1</sup> Interestingly, there is a growing body of literature discussing the identity and persistence conditions of *words*, the most famous contribution of which is undoubtedly Kaplan (1990), though see also Kaplan (2011), Hawthorne and Lepore (2011), and Bromberger (2011). But while this debate is obviously related to the one we are concerned with—meanings and words go hand-in-glove!—it is orthogonal to our concerns.

subject matter—and it must do so in a way that is accessible to ordinary speakers. (2012, p. 177)

We take this to be relatively uncontroversial.<sup>2</sup> Still, it is worth flagging up that we will assume that samesaying is not only possible, but that allowing for it is a major positive for any account of meaning (and thus also for accounts of meaning change).

Second, we take it to be uncontroversial (or at least accepted by every theory of meaning we can think of) that words, expressions, and other elements of language are associated with bundles of standing semantic properties. These bundles are the target of our standing knowledge of the semantic properties of a language and what allow us to say that we “know” the meanings of that language’s words. We are interested in the question of how, metaphysically, these bundles can change over time in various way.

That said, generic talk of ‘meaning’ is somewhat murky, as there are as many different theories of meaning as there are theorists, each featuring different preferred terminology and underlying metaphysical conceptions. For that reason, it is difficult to say something about the metaphysics of meaning change in general that won’t step on someone’s toes. But without some clarity, it will be nearly impossible to make any progress here.

One especially fruitful account of meaning comes from Frege (1892, 1918). Frege suggests that, in addition to having a referent (*‘Bedeutung’*), words also express a sense (*‘Sinn’*), where the word’s sense is a particular mode of presentation of the referent.<sup>3</sup> So, for example, ‘the morning star’ and ‘the evening star’ have the same referent—the planet Venus—but express different senses. These senses were neither physical nor psychological but rather abstract. In this way, the sense of the word ‘Venus’ is distinct from the physical tokens—the utterances—of the word, as well as the ideas any users of the term might have.<sup>4</sup>

Senses are of interest to us for three reasons. First, they provide public, *shared* meanings that multiple, distinct individuals can grasp. The public nature of senses means that senses provide a straightforward account of samesaying: two individuals mean the same thing by the use of an expression iff the expression has the same sense in both uses. Second, senses allow for compositionality at the level of sentential meaning; i.e., the senses of different words can be combined in systematic ways to give

<sup>2</sup> The qualification is necessary since there are some who deny even this relatively minimal idea of same-saying; those who hold such views will find little of interest here. Similarly, our notion of samesaying is slightly divergent from Davidson’s, who uses the term to capture the idea of one *sentence* saying the same thing as another. We, however, apply the notion of subsentential expressions. So those who think there is no intuitive sense in which we can ask whether one’s use of a word says the same thing as someone’s else use of the same word will find little of interest here as well.

<sup>3</sup> For the Fregean, it is sameness of sense and not e.g. reference that constitutes sameness of meaning both at and across times.

<sup>4</sup> There is some debate concerning how many senses a given proper name, when its reference is held fixed, has. *Variantists*—e.g. Burge (1979), Noonan, (2001), Forbes (1987)—claim that a given proper name has multiple senses, which, details aside, may ‘vary from occasion to occasion as well as from speaker to speaker’ (Barcan Marcus 1978, p. 503). In contrast, *invariantists* like May (2006) and Barcan Marcus (1978) say that the sense of a proper name ‘cannot vary from speaker to speaker, from utterance to utterance, nor from context to context, and no speaker can associate more than one sense with a given proper name’ (May 2006, p. 112). Here, we take no stand on this debate, as the view that we go on to develop is compatible with both options.

us the senses of sentences.<sup>5</sup> Third, senses are closely related to *cognitive significance*, though exactly how intimate this relation is remains a matter of debate.<sup>6</sup>

With this in mind, we here adopt a broadly Fregean account of meanings as senses. The ‘broadly’ qualifier is essential because the view we develop in part two is in many ways quite antithetical to orthodox Fregeanism. Still, we are (fairly) confident that those who reject the Fregean framework could re-phrase much of what is to come in their own preferred terminology/metaphysical picture. For example, a neo-Fregean view on which senses only fix intensions together with further extra-linguistic factors, as developed by e.g. Pietroski (2018), Carston (2002), or Travis (1996) could be readily slotted in with suitable modification to the discussion. Alternatively, following Prosser (2020), one might frame the discussion in terms of mental files (though see our brief point about this in §3). However, for present purposes, we will treat meanings as senses.

Yet even within this broadly “sensible” framework, there are a number of issues to quibble over. A particularly relevant one concerns intentions, which are functions from possibilities to extensions. One way of thinking of the relation between senses and intensions is that senses *are* intensions; Chalmers (2002, p. 145), for example, takes senses to be epistemic intensions. Others (e.g. Forbes, 2006) claim that intensions are not the right sort of things to provide an analysis of senses, and that we should keep the two separate. We remain neutral on this matter. However, to simplify later discussion, we will use intensions to analyse senses. Those who reject this idea could replace our discussion of the sense-intention relationship with whatever account they prefer without affecting our point.

With these assumptions made clear, we can now proceed to the main discussion.

## 1 Forms of meaning change

In the introduction, we mentioned that we think it a datum that meaning change happens. But *how* does it happen? That is, what form or forms can meaning change take?

We think that there are plausibly two different forms of meaning change. The first is that of meaning *replacement*. This occurs whenever a term’s meaning at some time is literally replaced with another, distinct meaning at a later time. For example, if the stories about ‘Madagascar’ are true, then there was a period of time when that name had one meaning (which picked out part of the African mainland), but this meaning “changed” by being replaced by a different meaning (one which picked out the island).<sup>7</sup>

In this way, the meaning of ‘Madagascar’ “changed” over time, in the sense that it formerly expressed one sense, but came to express a different one at a later time.

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<sup>5</sup> See e.g. Szabó (2000)

<sup>6</sup> We return to this point in Section 4.

<sup>7</sup> Note that we’re not here concerned with what caused this replacement to occur—it might be due to intentional action, unintentional social change, or something else entirely. All that matters for us is that the name used to have one meaning, then came to have another.

Something similar likely occurred with ‘silly’, ‘terrible’, ‘naughty’, and ‘awesome’; it might have also occurred with ‘nice’.<sup>8</sup>

A second form of meaning change is that of *meaning persistence*. Meaning persistence occurs when a term has a single meaning (i.e., expresses a given sense) that itself genuinely *persists* through a change, instead of being replaced by a different meaning. In other words, the meaning of the term is, in some sense, the same over time, though some features of the sense are different.

Accepting that some instances of meaning change involve meaning persistence is a substantive commitment. But we think there are cases where it can and does happen. Two particular instances involve communication across paradigms and ameliorative change. Both, we contend, are best understood as involving a form of meaning persistence.

Let’s begin with communication across paradigms. Often, in science, ways of thinking come along that change our way characterizing our subject matter. Kuhn (1962) famously discussed these ‘paradigm shifts’, where the whole approach to a particular science changes, such that some things that were meaningful on an older paradigm are not on the new (and vice versa). As is familiar, this raises the problem that every time there is a paradigm shift, we do not mean the same thing as people did under the previous paradigm, and, as a consequence, we are simply not talking about the same things that people in the previous paradigm were. An apparent upshot is that meaningful trans-paradigm communication—especially disagreement or critique—is impossible.

But take ‘fish’. Once, whales were thought to be fish. Eventually, it became analytically true that whales are *not* fish, since certain features that fishes have but whales lack were built into meaning of ‘fish’. Currently, however, ‘fish’ is not even taken to denote a natural kind at all (see Campbell and Dawes 2005). Nonetheless, when we consider a contemporary discussion about salmon runs, an eighteenth century Scottish recipe for smoked pike, and the line, ‘Now the Lord had prepared a great fish to swallow up Jonah’ (Jonah 1: 17, *KJV*), it is plausible to say there has been no change of topic—these three uses of the term ‘fish’ are all talking about the same thing, in some sense. Something remains the same, even if exactly what the term denotes varies. There is, we can say, a kind of samesaying going on. And just as samesaying is important synchronically, it is also important diachronically. This is clearest when we recognize that it is possible for us—contemporary speakers, operating within a contemporary paradigm—to agree or disagree with the fishy claims made by, for example, Gessner in his *Historia piscium* (1558).

Of course, it isn’t strictly necessary that this sameness of topic be understood as sameness of meaning. But if you take meanings to be the sort of thing that are meant to guarantee samesaying (as we do), then sameness of meaning across time is the best explanation for this. Moreover, this diachronic, trans-paradigm samesaying cannot simply be a case of mere meaning *replacement*. For if it was replacement, then we current users must mean something different than earlier users—i.e., the meaning of the term ‘fish’ at time  $t_1$  is distinct from the meaning at later time  $t_2$ . So any apparent

<sup>8</sup> In the 1300s, ‘nice’ meant something like foolish, stupid, or ignorant; by the eighteenth century, it had come to mean pleasant, agreeable, or even respectable—a complete opposite of its original usage.

(dis)agreement, critique, etc. would in fact involve (a massive amount of) talking past each other. This suggests that the meaning of ‘fish’ has persisted throughout—i.e., that there is a sameness of meaning that persists despite variations in what is picked out/denoted by the term.

Alternatively, consider ameliorative change of meaning, where the meaning of a term or phrase is intentionally changed for political purposes, and conceptual engineering cases (see e.g. Cappellen 2018), where we intentionally manipulate meanings to ‘engineer’ them, often to allow for greater flexibility or epistemically advantageous purposes. It looks impossible to make sense of the possibility of these actions with a meaning replacement only picture; the meanings won’t survive the engineering.

For example, take ‘marriage’. In countries that have passed the relevant legislation, there aren’t two types of marriage—*gay marriage* and *marriage*. Rather, there is *marriage*, and that now includes same sex partnerships. Indeed, it has been a particular point of the campaign for marriage equality, rather than civil partnerships, that the LGBTQ + community wanted to be part of the institution of marriage just as their friends, parents, and so on were.<sup>9</sup> There is a desire for gay people to be married in just the same sense as people have been married for centuries. To stress: this desire is precisely not that we should attach a distinct new meaning to the word ‘marriage’. Rather, the point is that we should mean the same thing by ‘marriage’, but collectively change who marriage can apply to.

If all change is replacement, then it would not be possible to change the meaning of ‘marriage’ such that, while it *was* analytically ruled out that two men could marry each other, it is now possible that they marry, without equivocating on ‘marry’. Instead, contemporary usage would necessarily mean something different than earlier usage, and political activists would have simply been equivocating. But this equivocation is not what has occurred. Rather, homosexual people can marry in just the same sense that heterosexual couples have been able to for some time. Instead of varying which meaning it expresses over time, ‘marriage’ still express the same meaning—though the meaning has changed its extension.

The same goes for ameliorative approaches to race and gender terms (see e.g. Haslanger, 2012). The aim of these changes is not to replace an old meaning with a new one (which would lead to potential equivocation or discussants talking past each other); instead, it is to continue to express the same, albeit suitably modified, meaning.

There are numerous, more mundane, less politically-loaded cases. One previously mentioned example is ‘salad’. Unlike with ‘meat’, it is plausible to say that while we have changed what *counts* as a salad—it was analytically true that a leaf-free selection of cold, cut fruit was not a salad, but, given the current meaning of the term, now is in fact a (fruit) salad—the meaning of the term has, in some sense, remained the same: we are still talking about *salads* (though this now applies to different things). And, as Cappellen (2018, p. 44) points out, ‘If this is true about ‘salad’, then it is true very widely—salad isn’t very distinctive in these respects’. Similar stories can be told about e.g., ‘watch’, ‘lunch’, ‘healthy’, ‘to think’<sup>10</sup>—a predicate we now happily apply

<sup>9</sup> Cf. Harper (2012).

<sup>10</sup> Thanks to Constantine Sandis for suggesting this example.

to numerous entities we would not previously have, as demonstrated by claims like, ‘my phone still thinks we’re on US time’—and, perhaps most controversially, ‘art’.

These examples highlight that, at least in some cases of meaning change, while there is variation over time concerning the extension of a given term, there is a single persisting meaning that remains the same. More generally, they suggest that there are at least two forms of meaning change: replacement and persistence.

### 1.1 Unchanging alternatives

We expect some readers are shaking their heads at this point, not having been persuaded that meaning persistence occurs. Such readers likely have an ‘error theory’ of meaning change, according to which there is no such thing as meaning change over time—rather, there is at best the mere appearance of such change.

This error theory can take several forms. The most radical rejects the very existence of meanings *per se*, filling their theoretical role with something else (e.g. pragmatics). Obviously, this no-meanings view entails that meanings do not change (since they don’t exist in the first place). We find this error theory implausible, given how useful shared meanings are when it comes to accounting for a wide variety of communicative phenomena. Still, it is an option.

A more plausible option, the epistemic version of the error theory claims that meanings exist, but are immutable; apparent meaning change cases really are instances where our best account or grasp of these (immutable) meanings shifts over time. So, according to this view, the meaning of ‘salad’ hasn’t in fact changed—it *always* applied to warm, non-leafy stuff. Prior users didn’t recognize this due to some epistemic failure on their part (e.g. they were too narrow-minded).

We think that it is hard to square epistemic error theory with lexical history. To paraphrase Jackman (2005, p. 367), it is implausible that the gradual change in meaning of ‘gay’ over the last century is somehow a product of our *discovering* that we were mistaken in applying the term to festive heterosexuals.

Finally, there is the contextual error theory. Kaplan (1989) famously distinguished character and content. The basic idea is that the semantic content of a term varies contextually, with each particular context fixing the particular content of the term for that particular occasion of use. In contrast, the character of a term does not vary contextually, but rather is held fixed. This stability of character ensures that when two spatially distant people say ‘come here’, even though they are asking for incompatible things, they are, in some sense, making the same (type of) request.

Running with this, one might be tempted to think that meaning change is simply variation over context—apparent change in meaning as simply variation in context over time. To pick an example: according to this view, ‘salad’ has as single meaning that, in the context of earlier uses, picked out cold dishes primarily composed of green, leafy vegetables. However, in the current context, it picks out warm, leaf-free options. Hence there isn’t really meaning *change* at all.

There is a lot to be said in favour of the contextual error theory. Still, we think it faces some difficulties. For example, it is strange to think that marriage equality



campaigners are merely trying to change the context (especially given how easy shifting/changing contexts typically is). Moreover, there are potential problems making sense of utterances involving two different context-relativized instances of a term ‘in one breath’.

Notably, it is possible to combine these error theories with the idea that meaning replacement occurs.<sup>11</sup> For example, one might claim that cases like ‘gay’ should be understood as instances of meaning replacement, while other cases (e.g., scientific terms relevant to paradigm change), should be dealt with using the epistemic error theory. The general thought behind this hybrid replacement + error theory is that some cases of meaning change—e.g., those involving what looks like considerable meaning shift—involve meaning replacement, while other cases—namely, those that involve some kind of meaning stability or identity in meaning—are really just cases where we come to discover the meaning.

We think such hybrid approaches are promising. However, they struggle to accommodate all meaning change cases. For example, the shift in meaning of ‘salad’ doesn’t seem like an instance of replacement, nor does it seem like we are, over time, discovering what ‘salad’ really picks out. Similarly, as mentioned earlier, the meaning of ‘art’ has dramatically shifted over the past 120 years, stretching to include e.g. ready-mades, Happenings, concept art, glitch images, and videogames. This does not seem to be an instance of meaning replacement—critics, artists, and aestheticians can still (dis)agree with each other’s ‘art’ talk despite being on different sides of this temporal span—nor is it an act of epistemic discovery. Rather, it looks like we’ve a meaning that has persisted, despite some rather substantive changes. The upshot is that we’re better off adopting a view that supports both meaning replacement *and* persistence cases, instead of a view, like this hybrid approach, that only leaves room for replacement.

## 2 Ways of persisting

Let us now turn to a different question: *how* can meanings change over time? We think a useful way to begin addressing this question is to draw an analogy between meaning change over time with the metaphysics of persisting material objects.

### 2.1 Lessons from metaphysics: the persistence of objects

Material objects change their properties over time. A ship goes to sea, and undergoes various repairs; some more significant (e.g. a new mast), some incidental (e.g. new door handles), and some part of normal wear and tear (e.g., the surface of the deck is a little worn away by cleaning). Later, a ship arrives at port, to a great cheer from the quayside. Why the cheer? Because the ship that left has returned—the very same ship that left. Ships, it seems, can persist through change.

Likewise for people. A friend visits from out of town, and they have grown an inadvisable moustache, lost weight, and acquired a scar whilst rock-climbing. You recollect how you two enjoyed such-and-such back in the day, but oh how things

<sup>11</sup> Thanks to an anonymous referee for suggesting this line of thought.

have changed. Nonetheless, it is you and they—the very same people now reminiscing—who enjoyed such-and-such back in the day, not other people. It is you and they who have undergone change.

Along with the above cases, there are also circumstances when a change is too drastic for a material object to survive: sometimes a change results in the loss of a ship, but the gain of a wreck and some driftwood, or the loss of a friend, and the gain of a dead body. And there are, of course, questions about what the persistence conditions of concrete objects are. These may well be difficult to specify, and irredeemably vague. But what matters here is that there appear to be at least *some* cases of material object persistence, and at least *some* cases where the change is too great for the object to persist, and it is replaced.

Thus it is a datum that object-property shifts happen. And there are various forms this shift can take: cases of shift as replacement—when the ship becomes a wreck—as well as cases of persistence—when the friend gets a new haircut. Metaphysicians owe us an explanation. That is, they need to tell us how, exactly, we should understand the phenomena of material object persistence. And any good account of this phenomenon must either make room for or, at minimum, explain away the apparent cases of persistence and of replacement.

Helpfully, metaphysicians have provided a number of accounts of what it is for an object to persist through change in properties. One option, suggested by e.g. Quine (1950) and Armstrong (1980), is to embrace *perdurantism*, according to which objects persist by having a variety of numerically distinct temporal parts, each of which have a specific set of unchanging properties. For example, a shoe might have a temporal part  $s_1$  at time  $t_1$  which is polished, and a distinct temporal part  $s_2$  at time  $t_2$  which is scuffed. The shoe persists through change in virtue of having different parts at different times which have different properties. Note that on this view, it is not the shoe which is scuffed, but merely a temporal part of the shoe. There is nothing which was once polished and is now scuffed. To talk in such a way is no more than a *façon de parler*.

A second option, advanced by e.g. Sider (2001) and Hawley (2001), is *exdurantism*, which holds that what persists are temporal stages. They persist by standing in counterpart relations to other stages. On such a view the scuffed shoe-at- $t_2$  has persisted through change in virtue of standing in the right causal, historical and similarity relations to a shoe-at- $t_1$  which was polished. The shoe is genuinely scuffed, on this view, rather than merely a part of it being scuffed, as the perdurantist would have it. Nonetheless, the shoe is not an object that has changed. Strictly speaking, the shoe is a momentary object which is related in certain ways to another momentary object with different properties. To talk of these two momentary objects as being the same is no more than a *façon de parler*.

A third option is *endurantism*, which holds that, when an object persist from time  $t_1$  to time  $t_2$ , it is the numerically same object at  $t_1$  and  $t_2$ , and, if there is any change, it is the properties possessed by the object that differ. That is to say that the shoe is the (numerically) *same* shoe that was once polished and is now scuffed, and it was *the shoe* that was polished and is now scuffed, not merely a temporal part of it that was polished and a different temporal part that was scuffed.

Endurantists differ on how exactly to account for this change in the properties had by persisting objects—some explain such changes by appealing to tense changes

(Zimmerman (1998); Markosian (2004)), while others do so by treating possession or instantiation of properties being relative to times (Johnston (1987); Haslanger (1989)). But what unites all endurantist variants is that, unlike the previous two views, endurantism meets Haslanger's (2003) *Proper Subject of Change* condition: the change in properties is a genuine change in the thing that persists.

## 2.2 Accounts of meaning change

These three accounts of material object persistence have analogues with regards to meaning change. We can think about the properties that a material object has at any moment, and claim that the object persists through change in what properties it has at the different times at which it exists. Similarly, we can claim that senses have certain reference-fixing properties at any moment, and that senses persist in change in what these are.<sup>12</sup>

Our first account of meaning persistence is *meaning perdurantism*, which claims that meanings persist by having a variety of distinct temporal parts, each of which have specific set of unchanging properties. For example, 'salad' might have as a temporal part an intension  $i_1$  at time  $t_1$  such that the term only applies to cold, leaf-based dishes, and a different intension  $i_2$  as a temporal part at time  $t_2$  which extends the range of application to include fruit salad. The meaning of 'salad' then persists through change in virtue of having parts with different properties at different times. To talk of the meaning of the term itself changing its properties—or even of determining what is or is not rightly called a salad—is no more than a *façon de parler*.

Meanwhile, *meaning exdurantism*, holds that meanings are in fact extremely short-lived—temporal stages, effectively—which 'persist' by standing in counterpart relations to other short-lived meanings.<sup>13</sup> On such a view, the current meaning of 'salad' can be said to have persisted through change in virtue of standing in the right causal, historical, and similarity relations to the old meaning of 'salad'. And it is the meaning of 'salad' itself, rather than a mere part of the meaning (as the perdurantist would have it), that fixes what is or is not rightly called a 'salad'. Nonetheless, the meaning itself has not changed: strictly speaking, the current meaning is merely momentary, related in certain ways to another merely momentary meaning with different properties. To talk of these two momentary meanings as being "the same" is no more than a *façon de parler*.

Finally, *meaning endurantism* says that, when a meaning persists from time  $t_1$  to time  $t_2$ , it is the numerically same meaning both times, though the properties possessed by the meaning may differ. That is to say that the current meaning of 'salad' is the (numerically) *same* meaning that was once exclusive to cold, mostly leafy dishes and is now more inclusive, and it was *that very meaning* that had the property of fixing the earlier extension of 'salad' and now has the property of fixing the wider, contemporary

<sup>12</sup> Again, we will use intensions as our analogue of the properties that material objects have at particular times but, as previously mentioned, feel free to substitute in your preferred account of reference fixing properties here.

<sup>13</sup> One could think of these as the instantaneous meanings, or as immutable eternal intensions that a term only expresses very briefly *a la* meaning replacement.

extension, not merely one of the meaning's temporal parts. Much like with endurantists about material objects, meaning endurantists can differ on how exactly they account for the change in the properties had by persisting meanings. But the key element behind meaning endurantism is that, unlike the previous two views, it also meets Haslanger's *Proper Subject of Change* condition.<sup>14</sup>

### 3 Prosser's mental file exdurantism

The broad options detailed in the previous section are all *prima facie* plausible ways to think about the metaphysics of meaning change. In this way, we hope to have provided something like a survey of the options here. For the remainder of the paper, however, we'd like to shift tack. Instead of surveying, we'd like to develop a particular account of meaning change. To do so, we will first look at a recent argument for meaning exdurantism. This will set the stage for our own positive account.

Like us, Prosser (2020) is concerned with diachronic samesaying.<sup>15</sup> However, his target is more narrow; he is specifically interested in the diachronic individuation of 'non-descriptive singular modes of presentation (MOPs)' (2020, p. 657). Following Grice (1969), Strawson (1974), and Recanati (1993, 2012, 2016), Prosser understands MOPs in terms of *mental files*—i.e., mental dossiers that compartmentalize information about specific entities. For him, sameness of a mental file over time ensures sameness of the relevant MOP, which in turn guarantees what we have been calling sameness of meaning.

As Prosser notes, Frege gave us a clear and fairly intuitive criterion for individuating MOPs for a single subject at a single time: if, at time  $t$ , rational subject  $S$  can believe that  $a$  is  $F$  while not believing that  $b$  is  $F$ , then ' $a$ ' and ' $b$ ' are different MOPs for  $S$  at  $t$ . Of course, this criterion doesn't tell us anything about diachronic individuation cases. So, what should we say about these?

A natural extension of the above is to say that two MOPs  $a$  and  $b$  are the same over time provided the epistemic conditions under which  $S$  would be warranted in making a judgment featuring  $a$  are identical to the ones where  $S$  would be warranted in doing the same with  $b$ —i.e., two MOPs are the diachronically identical iff they have the same *epistemic properties*. Prosser rejects this option—rightly, in our opinion—because 'no mental file can be individuated just in terms of such properties, as they may change over time' (2020, p. 661). In other words, accepting this criterion entails adopting an error theoretic view (see the discussion in §1.2).

The upshot is that, like us, Prosser thinks that we should pick from the three options discussed in the previous section. His ultimate preference is for a form of exdurantism. He contends that endurantism faces 'transitivity problems', which he aims to bring out

<sup>14</sup> Suppose that we think endurance is the best story for object persistence. Does that mean we should automatically accept meaning endurance? No. Generally, there's no problem with having different metaphysics of persistence for different types of entities. Consider event versus individual persistence. Here, metaphysicians regularly tell different stories, with (say) events persisting via perduring, while objects endure.

<sup>15</sup> He is also concerned with synchronic interpersonal samesaying, but that is less relevant for present purposes.

via fission and fusion cases.<sup>16</sup> For example, take a classic instance of fission extended to mental files: suppose that a person undergoes perfectly symmetrical fission into two offspring, both psychologically continuous with the original. Plausibly, the mental files of the offspring would be epistemically transparent to the parent (and, presumably, vice versa), though they might not be transparent with each other. This would give us a failure of transitivity: parent's file is identical to both offspring files, though the files are not identical to each other. Similarly, consider cases of file fusion. Suppose that an individual has two distinct files about entities *a* and *b*. These could later be fused into a single file, say when the individual learns that  $a = b$ . However, if the individual had, prior to fusion, believed that *a* is *F* and that *b* is not *F*, then 'the fused file would transparently inherit their contents, and the subject would then be left with contradictory beliefs that must somehow be resolved' (2020, p. 667).

The lurking problem, according to Prosser, is the 'assumption that the persistence ... consists in the numerical identity of an entity in its entirety at one time with an entity that exists in its entirety at another time' (2020, p. 669). In other words, in analogy with Parfit (1971) on personal identity, we should 'accept that the 'survival' of a file ... is not identity.' (2020, p. 671) —instead, it is some weaker relation.

Building on this rejection of endurantism, Prosser proposes a form of exdurantism.<sup>17</sup> More specifically, he suggests that a persisting mental file is a series of numerically distinct momentary (or extremely short-lived) *file stages*, each of which stands in a *transparency relation* to sequent file-stages. This transparency relation is not transitive, thereby avoiding the fission–fusion problems; it is also not necessarily symmetric.<sup>18</sup> Moreover, it can be used to provide an account of diachronic individuation: two individuals are thinking of an entity under the same MOP at the different times iff the relevant file-stages are transparency-related to each other (2020, p. 670). Generalizing, we can say that, on Prosser's view, a word's meaning has persisted through time iff the mental file stages currently associated with the word stand in the transparency relation to earlier file stages.

We have two points of disagreement with Prosser. The first, fairly innocuous, point concerns the nature of meaning. As discussed in the introduction, we prefer understanding meanings in terms of senses rather than mental files. This is primarily because mental files are, in our opinion, too psychologistic to properly capture meaning, which we think is a public phenomenon. Since senses are by definition public entities, we think they are better suited to this task. Again, though, this is a fairly minor point.

The second, more substantive issue concerns how meaning persists. Specifically, we are inclined to embrace endurantism. Why endurantism? Of the three options, we think

<sup>16</sup> Prosser in fact gives four cases (2020, pp. 666–667), though the two mentioned here highlight what he takes to be the core problem facing endurantism.

<sup>17</sup> Prosser's objection to perdurantism, which he says is almost as good as his preferred exdurantism, it that it has the.

...prima facie drawback that it entails a sense in which there are two different entities present even before fission... [which] seems particularly undesirable for a theory of MOPs; for, prior to fission, the subject cannot rationally take two different attitudes to the same state of affairs, as we should normally expect if the subject entertains two different MOPs.' (2020, p. 670).

We feel perdurantists could readily push back here, but are happy to let them fight their own battles.

<sup>18</sup> Prosser says that he 'leans towards' thinking it is not symmetric (2020, p. 672).

that it is the only view that treats meanings *themselves* as the proper subject of change. Consequently, taking meaning persistence cases (like those discussed in §1 above) at face value should, we think, push one towards accepting meaning endurantism instead of the alternatives.

That said, meaning fusion cases certainly seem possible. ‘Trout’ and ‘salmon’ currently have different senses, but biologically both Atlantic salmon and rainbow trout are members of the genus *Salmo*, along with various other species with resemblances to each. We can imagine the words ‘salmon’ or ‘trout’ coming to refer to the genus *Salmo*, such that it is a matter of fashion amongst differing linguistic communities which term gets used, but they are standardly used as translations for one another between those linguistic communities. At this point, there cease to be two distinct senses, but merely two words that are alternative expressions of the same sense for different linguistic communities. If change is gradual enough, besides various unresolvable arguments amongst pedants about whether *this* stuff is smoked salmon or smoked trout, the change in sense won’t provide a sharp-cut off point that suggests we’re using the word ‘salmon’ in a new sense. Such a case seems to reflect how language changes as some distinctions stop being useful. Given the publicity of meanings, they will always need to allow for a certain level of tolerance for subtle differences in use within a linguistic community, and that tolerance will allow for gradual shifts in use as that community itself successively persists through change.

Similarly for meaning fission cases; we can discover that what we took to be a single mode of presentation needs to be split into distinct uses. For example, Paul, Persons and Van Raalte (2022) argue that *Tyrannosaurus Rex* in fact covers three distinct species. If we accept their argument, then we can expect some fission with regard to the meaning of ‘Tyrannosaurus Rex’.

And Prosser’s right to say that fission and fusion cases raise *prima facie* problems for endurantist accounts of meaning persistence, problems so onerous that we must avoid them (and that we avoid if we adopt exdurantism). But it is not clear how genuinely problematic these cases are. For one thing, they will be no more problematic than fission and fusion cases for material objects. That is, they are no more compelling here than they are when (say) we cut a potato into bits and grow multiple distinct potatoes from the resulting pieces, or when we take two distinct philosophy departments and fuse them into one. Someone who thinks we must be exdurantists in these cases may well think the same in the case of meanings, while someone who accepts endurantism about potatoes or philosophy departments need have no qualms about also doing so about meanings. If we accept that endurantism is a viable option for material objects, meanings present no special, novel issues; fission and fusion weirdness is familiar territory.<sup>19</sup>

So, we acknowledge that endurantism leads to some funniness with regards to fission/fusion, but don’t think that really settles the matter. Yet there’s a still lurking question: why not go for the (apparently) logically easier route of exdurantism, as Prosser advocates? Put bluntly, we think that diachronic *identity* matters. Gallie (1956) discusses the phenomenon of concepts (e.g. art, democracy, the Christian tradition)

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<sup>19</sup> This is not to say that accepting meaning endurantism requires also accepting endurantism for material objects; see fn14.

where the essence of that concept is contested; there is no single clearly definable single use of these concepts that can be set up as the standard correct one; the concept is put to a variety of competing functions.

Now once this variety of functions is disclosed it might well be expected that the disputes in which the above mentioned concepts figure would at once come to an end. But in fact this does not happen. Each party continues to maintain that the special functions which the term “work of art” or “democracy” or “Christian doctrine” fulfils on its behalf or on its interpretation, is the correct or proper or primary, or the only important, function which the term in question can plainly be said to fulfil. Moreover, each party continues to defend its case with what it claims to be convincing arguments, evidence and other forms of justification. (Gallie, 1956, p. 168)

As Gallie argues, the role that these concepts have in appraising and defending behaviour means that that it matters to those engaged in that contest who gets control of *that very concept*. Only endurantism allows that such contests are doing something other than fighting about how to change the subject, because only endurantism allows that senses are the proper subjects of change.

#### 4 Enduring senses

With that in mind, we turn now to our own, positive view. According to *sense endurantism*, senses, which are the meanings of expressions, can persist through change in their intensions. That is, it is possible that a single meaning—i.e., a single sense—had an intension  $i_1$ , but now the *very same sense* has a distinct intension,  $i_2$ . The intensions provide snapshots of the sense at a particular time, but the sense is not the intension, just as the ship is not identical with the arrangement of things that coincide with it at any particular moment.<sup>20</sup> A ship may persist through change of its parts/how they are arranged, but an arrangement of parts cannot—the parts and their locations relative to each other are essential to the arrangement, but not to the ship. Similarly, the sense of an expression may change its modal profile, but an intension cannot. An intension is a function with inputs (possibilities) and outputs (extensions) that are essential to it, but these may not be essential to the sense. Senses, which provide the cognitive significance of and contribute to fixing the reference/extension of an expression, successively coincide with intensions, on the sense endurantist view, but are not identical with them. In this way, a sense endurantist takes senses themselves to be the *proper subject of change*.

The enduring sense view requires rejecting a number of commitments of orthodox Fregeanism. For one, Frege accepted an immutability of referent thesis:

ImReferent If sense  $s$  ever is a mode of presentation for a particular referent  $r$ , then  $s$  always ‘refers to’  $r$

<sup>20</sup> We are rejecting *composition as identity* for both ships and senses. See Baxter and Cotnoir (2014) for a discussion about this issue.



He also held that sentences expressed *thoughts*, and referred to either the True or the False. Fregean thoughts stand in a tight, compositional relationship to senses:

**Compositionality** The thought  $t$  of a given sentence  $S$  is composed of the senses  $s_1 \dots s_n$  of the words that compose  $S$ , concatenated in the same order as the words occur in the sentence

Together, ImRef and Compositionality entail a third commitment of orthodox Fregeanism:

**ImTruth** If thought  $t$  ever refers to the True or to the False, then it always does

Because it allows for cases where a particular sense denotes one referent at a time and a different referent at a later time, the enduring sensate must reject ImReferent and ImTruth. In other words, the enduring senses theory should accept *temporalism*, the view that, for reasons not to do with the presence of indexicals or demonstratives, ‘at least some sentences of English express propositions which can change truth value over time’ (Richard, 1981, p. 1).<sup>21</sup> This looks like a substantive commitment, but we see it as a fairly natural result of accepting the possibility of meaning persistence cases: if you want to say that ‘fish’ or ‘marriage’ have the same meaning over time, then ‘whales are fish’ and ‘people of the same sex can’t get married’ should express the same proposition over time. Still, truth-values are supposed to shift (because extensions shift), hence the proposition must be able to shift truth values.

Further, orthodox Fregeanism takes sense to be partially determined/constituted by cognitive significance. Given that we are allowing for meaning change over time, it seems like we must allow for change in cognitive significance over time too. But this seems to run into individuation problems. Thankfully, the enduring sense theorist can take a page from Prosser and note that familiar individuation criteria for meanings/senses do not say much about diachronic cases. Instead, what settles diachronic individuation is the numerical identity of the senses involved. Again, though, this highlights how the conception of sense employed is not strictly Fregean.

Of course, sense endurantists accept many other key elements of Fregeanism. This includes the idea that meanings are senses, and that these senses support a notion of samesaying because they are public and shared (senses must be public in order for there to be sameness of topic between interlocutors). They also believe, like Frege, that this notion of samesaying applies both synchronically and diachronically, such that an expression  $e_1$  at time  $t_1$  means the same as an expression  $e_2$  at time  $t_2$  *iff* they both express the numerically same sense.

The enduring senses view, then, can provide an account of meaning persistence cases: specifically, cases where the intensions of a sense change but the sense remains (numerically) the same are cases of meaning persistence. The current meaning of ‘salad’ is the (numerically) *same* sense that once determined a reference class of cold, mostly green leafy dishes and now determines a more inclusive one. There is preservation of meaning—i.e., preservation of sense—throughout the change, despite the fact that what counts as a possible referent varies.

<sup>21</sup> For more on temporalism see e.g. Zimmerman (1998) and Brogaard (2012), and for a detailed discussion of the relationship between endurantism and temporalism, Haslanger (2003).



And this sameness of meaning over time via sameness of sense over time ensures that, even in cases where there has been significant change in intension/extension, there has been no change of topic. This allows for synchronic and diachronic samesaying across paradigms, while still allowing that paradigm shifts affect the recognitional capacities, linguistic division of labour, and salient features of the world we can be reasonably taken to indicate through ostension. Similarly, an enduring senses view is well-placed to explain ameliorative social change: what is desired in the ‘marriage’ case is that we retain the (numerically!) same sense of ‘marriage’, but change the intention and extension of the term. And such an outcome is genuinely possible, given enduring senses.

## 5 Some objections and clarifications

Before closing, we would like to consider some potential objections to the enduring senses view. By discussing these, we hope to thereby further clarify the story.

### 5.1 Abstracta can’t change

According to Frege, senses are denizens of the ‘third realm’, which included other abstracta. And abstracta are typically thought to be eternal and unchanging, at least with regards to their (intrinsic) properties over time. However, the sense endurantist holds that senses *do* change over time. So, it seems there’s a problem.

Thankfully, there is no reason to think that *all* abstracta are unchanging. For example, Thomasson (1998) contends that fictional characters are created abstracta that can change some of their intrinsic features, while Walters (2013) argues the same for repeatable artworks. More generally, it is plausible that abstracta are a rather diverse lot, such that some—e.g. pure sets—are immutable, while others—e.g. fictional characters, games, senses—can change their properties over time.

When describing the history of chess, we might think a key moment was the invention of the ‘killer queen’ in the 15<sup>th</sup> Century, where the queen acquired the range of movement that we are familiar with in contemporary chess tournaments. It seems like, with a change in what set of moves were available to the queen, there was a change in the game. One could debate whether this was a new game, ‘modern chess’, to be contrasted with various ancient and medieval versions, but most would accept that the game of chess has a history that goes back that far at least, despite conventions like White moving first being introduced centuries later. In this way, we agree with Ridge that thinking games never evolve over time is ‘inadequate... [and] alien to the semantic intentions of ordinary speakers’ (2021, p. 8826).

A natural way to understand this possibility for evolution is to think that chess is abstract (you don’t need any physical pieces or boards to play chess),<sup>22</sup> but that it has changed over the centuries. Meanings, being abstract artefacts made and maintained

<sup>22</sup> See e.g. Wildman and McDonnell’s (2020, pp. 495–497) discussion of standard, correspondence, and blindfold chess.

by communities who participate in using them, are more like games than they are like pure sets, we submit.<sup>23</sup>

## 5.2 The ever present possibility of branching

Temporal externalists like Ebbs (2000) and Jackman (2005) reject the view that what we mean by a term necessarily supervenes upon our use of the term up to that time. As Ebbs makes clear, this is intended to rule out all substantive Fregean views of meaning, and most certainly would rule out the enduring senses view. Ebbs argues for this conclusion on the basis of the ‘*ever-present possibility of branching*’: because the linguistic community could develop in multiple different ways, it is indeterminate which of the various possible extensions might be getting picked out; consequently, per Ebbs, we should deny that use of a term specifies its meaning (2000, p. 260).<sup>24</sup>

An enduring senses view can readily account for the ever-present possibility of branching; a sense may be able to survive various different changes as it develops over time, without a change of topic. The fact that the extension of a term may change as we come to know more science, or make different decisions about how to use it, is no objection to an enduring senses view then.

More generally, we think there are good reasons to reject temporal externalism. Like Brown, we think that it, “fails to accord with our ordinary linguistic practice”, and that, “...we do not regard evidence about future practices as relevant to the meaning or truth-value of current utterances and thoughts. More fundamentally, we do not defer to future linguistic practice for the correct explication of our concepts” (2000, p. 187). Donnellan puts the point more bluntly, describing temporal externalism as “an outrageously bizarre view of language—that the extensions of one’s terms may be determined by the psychological quirks of some people several centuries hence” (1983, p. 103).<sup>25</sup>

In fact, things might be even worse for temporal externalism. On some views of future truth, some propositions about the future have an indeterminate truth value, as a result of metaphysical indeterminacy in the world about the future (Barnes & Cameron, 2011; Briggs & Forbes, 2012). If one accepts one of these views about future truth, then temporal externalism amounts to a claim that we cannot even in

<sup>23</sup> Wittgenstein (1953) drew some attention to similarities between language and games, though he would likely have been unsympathetic to discussion of senses in the sense we have been using them.

<sup>24</sup> Two things deserve comment here. First, Ebbs is talking about sameness of extension, but we are concerned with sameness of meaning (the term, incidentally, that Jackman uses). This is because we think there can be sameness of meaning without sameness of extension, precisely because we think that the meaning of a term can change and that meaning fixes the extension. Second, it is no objection that the use of a term leaves meanings open to change in virtue of new applications. This is precisely one of the features of meanings that makes them so *useful* in a changing world. We allow for the ever-present possibility of branching as a feature you would expect from a persisting thing; we just don’t think this provides a reason to adopt temporal externalism.

<sup>25</sup> It is worth noting that the enduring senses view is compatible with a form of semantic externalism that claims that it is e.g. past/present ostension (given a broadly indexical version of externalism), sociolinguistic state (Putnam 1975), or ‘recognition capacities’ (Brown 1998, p. 300) that are required to allow the world to step in and play its role in fixing meanings. For further discussion of semantic externalism, especially with regards to the broadly indexical approach, see e.g. McLaughlin and Tye (1998), Sawyer (2003), Goldberg (2005), and Besson (2012).

principle know the meanings of our own words, because they are as yet unsettled. Temporal externalism then ceases to be an *epistemic* error theory, and becomes an error theory about the existence of meaning. But this is implausible. It is one thing for the truth-value of a statement to be unsettled, but another for the *sense* of that statement to be metaphysically indeterminate; we can *grasp* the content of the claim ‘there will be a water fight tomorrow’ even if we don’t know whether to agree.

### 5.3 Use, meaning, and enduring senses

In light of rejecting temporal externalism, it is plausible to think that meanings are fixed by past/present usage. But this seems to generate a new problem for enduring senses. In light of this, it is natural to say that the fact that a given term expresses a given sense is grounded in the past/present usage of the term. However, cases of meaning shift are normally (if not always!) accompanied by shifts in usage. Consequently, the relevant usage facts will cease to obtain. Yet once these usage facts no longer obtain, there is no longer anything around to ground/explain the fact that the relevant term has the relevant sense. So, when it comes to terms where the meaning has changed, there doesn’t seem to be any plausible explanation for the fact that a given term has a given sense.

The most direct response to this objection is to simply say that grounding can be diachronic: some fact at time  $t_1$  can ground some other fact at distinct time  $t_2$ .<sup>26</sup> Thus the usage facts obtaining at some prior time  $t_0$  would serve as grounds both for the fact that a term  $t$  expresses a given sense  $s$  at  $t_0$  as well as the fact that  $t$  expresses  $s$  at some later time  $t_1$ . The sense endurantist can also use this to elucidate why it is that a given sense’s extension is what it is at a particular time: what grounds the fact that sense  $s$  has extension  $e$  at  $t_1$  is the usage facts that obtain at  $t_1$ , what grounds that  $s$  has extension  $e'$  at  $t_2$  is the usage facts that obtain at  $t_2$ , etc.

### 5.4 Cheaper options?

Finally, returning to the worries expressed by Prosser (2020), one may find the insistence on the diachronic *identity* of senses over time to give rise to a conceptual worry about how things can both change and be the same.<sup>27</sup>

If sense endurantism is unpalatable, sense exdurantism is the best alternative. For one thing, it captures the thought that Fregean senses might be identified with intensions, or identified with whatever more complicated successor to intensions one prefers. What’s more, sense exdurantism can cope with instantaneous meanings—since exdurantism amounts to meaning replacement only, meanings don’t have to last very long in time.<sup>28</sup> Instead of requiring numerical identity between meanings at different times, exdurantism makes do with counterpart relations. Whenever the endurantist

<sup>26</sup> For further discussion, see Wilson (MS).

<sup>27</sup> This is often known as *the problem of temporary intrinsics*, but, as Hawley (2001, p. 16) points out ‘intrinsic change is not inherently more problematic than change in extrinsic features’.

<sup>28</sup> Instantaneous meanings seem like an unpalatable commitment, since meanings, like the borealis race in Burns (1791), would ‘flit ere you can point their place’.

says that diachronic identity holds, the exdurantist will say the counterpart relation holds. It allows you to say the same things that an endurantist would say, but with no more metaphysical commitments than a perdurantist. We think that it is a cost that it explains away, rather than accepts, the appearance of meaning persistence, but if you were strongly committed to unchanging meanings in any case, it allows you to capture the phenomenon we are interested in. However, it does not take literally the desire of activists for ameliorative change to participate in institutions *in the same sense* as those who previously have. This seems like a good reason to instead opt for sense endurantism.<sup>29</sup>

## Declarations

**Conflict of interest** There are no conflicts of interest to declare.

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## References

- Armstrong, D. M. (1980). Identity through time. In P. van Inwagen (Ed.), *Time and cause* (pp. 67–78). D. Reidel.
- Barnes, E., & Cameron, R. (2011). Back to the open future. *Philosophical Perspectives*, 8, 365–388.
- Besson, C. (2012). Empty natural kind terms and dry-earth. *Erkenntnis*, 76(3), 403–425.
- Briggs, R. A., & Forbes, G. A. (2012). The real truth about the unreal future. In K. Bennett & D. Zimmerman (Eds.), *Oxford studies in metaphysics*. (Vol. 7). Oxford University Press.
- Brogaard, B. (2012). *Transient Truths*. Oxford University Press.
- Bromberger, S. (2011). What are words? Comments on Kaplan (1990), on Hawthorne and Lepore, and on the issue. *Journal of Philosophy*, 108(9), 486–503.
- Brown, J. (1998). Natural kind terms and recognitional capacities. *Mind*, 107(426), 275–303.
- Brown, J. (2000). Against temporal externalism. *Analysis*, 60(2), 178–188.
- Burge, T. (1979). Sinning against Frege. *The Philosophical Review*, 88(3), 398–432.
- Burns, R. (1791) Tam O Shanter
- Campbell, A. and Dawes, J. (eds.) (2005) Fish, what is a? In *Oxford encyclopedia of underwater life*. Oxford University Press
- Cappelen, H. (2018). *Fixing language*. Oxford University Press.
- Carston, R. (2002). *Thoughts and utterances: The pragmatics of explicit communication*. Blackwell.
- Cotnoir, A. J., & Baxter, D. L. M. (Eds.). (2014). *Composition as identity*. Oxford University Press.
- Chalmers, D. J. (2002). On sense and intension. *Philosophical Perspectives*, 16, 135–182.
- Crystal, D. (2006). *How Language Works*. Penguin.
- Dalton, J. (1805). On the absorption of gases by water and other liquids. *Memoirs of the Literary and Philosophical Society of Manchester*, 1, 271–287.

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- Donnellan, K. (1983). Kripke and putnam on natural kind term. In C. Ginet & S. Shoemaker (Eds.), *Knowledge and mind*. Oxford University Press.
- Dorr, C., & Hawthorne, J. (2014). Semantic plasticity and speech reports. *Philosophical Review*, 123(3), 281–338.
- Ebbs, G. (2000). The very idea of sameness of extension across time. *American Philosophical Quarterly*, 37(3), 245–268.
- Frege, G. (1892). ‘On sense and reference’, trans. 1948. *The Philosophical Review*, 57(3), 209–230.
- Frege, G. (1918). ‘The thought: A logical inquiry’, trans. 1956. *Mind*, 65(259), 289–311.
- Forbes, G. R. (1987). Is there a problem about persistence? *Proceedings of the Aristotelian Society*, 61, 135–155.
- Forbes, G. R. (2006). *Attitude problems*. Oxford University Press.
- Gallie, W. B. (1956). Essentially contested concepts. *Proceedings of the Aristotelian Society*, 56, 167–198.
- Goldberg, S. (2005). An anti-individualistic semantics for “empty” natural kind terms. *Grazer Philosophische Studien*, 70, 147–168.
- Grice, H. P. (1969). Vacuous names. In D. Davidson & J. Hintikka (Eds.), *Words and objections* (pp. 118–145). Reidel.
- Harper, R. (2012). When I Get Married, Will It Be a ‘Gay Marriage’?. *Huffington Post* [http://www.huffingtonpost.com/robyn-harper/marriage-equality\\_b\\_1572611.html](http://www.huffingtonpost.com/robyn-harper/marriage-equality_b_1572611.html)
- Haslanger, S. (1989). Endurance and temporary intrinsics. *Analysis*, 49, 119–125.
- Haslanger, S. (2003). Persistence through time. In D. Zimmerman & M. Loux (Eds.), *The Oxford handbook in metaphysics* (pp. 315–354). Oxford University Press.
- Haslanger, S. (2012). *Resisting reality*. Oxford University Press.
- Hawley, K. (2001). *How things persist*. Oxford University Press.
- Hawthorne, J., & Lepore, E. (2011). On words. *The Journal of Philosophy*, 108(9), 447–485.
- Jackman, H. (2005). Temporal externalism, deference, and our ordinary linguistic practice. *Pacific Philosophical Quarterly*, 86, 365–380.
- Johnston, M. (1987). Is there a problem about persistence? *Proceedings of the Aristotelian Society*, 61, 107–134.
- Kaplan, D. (1989). Demonstratives. In J. Almog, J. Perry, & H. Wettstein (Eds.), *Themes from Kaplan* (pp. 481–563). Oxford University Press.
- Kaplan, D. (1990). Words. *Aristotelian Society Supplementary*, 64(1), 93–119.
- Kaplan, D. (2011). Words on words. *Journal of Philosophy*, 108(9), 504–529.
- Kingma, E. (2019). Were you part of your mother: The metaphysics of pregnancy. *Mind*. <https://doi.org/10.1093/mind/fzy087>
- Kuhn, T. (1962). *The structure of scientific revolutions*. University of Chicago Press.
- McLaughlin, B., & Tye, M. (1998). Externalism, twin earth, and self-knowledge. In B. Smith & C. McDonald (Eds.), *Knowing our own minds: Essays on self-knowledge* (pp. 285–320). Oxford University Press.
- McMahon, A. M. S. (1994). *Understanding language change*. Cambridge University Press.
- May, R. (2006). The Invariance of Sense. *Journal of Philosophy*, 103(3), 111–144.
- Marcus, R. B. (1978). Names and Descriptions. *The Philosophical Review*, 87(3), 497–504.
- Markosian, N. (2004). A defense of presentism. In D. Zimmerman (Ed.), *Oxford studies in metaphysics*. (Vol. 1). Oxford: Oxford University Press.
- Noonan, H. (2001). *Frege: A critical introduction*. Polity.
- Parfit, D. (1971). Personal identity. *The Philosophical Review*, 80(1), 3–27.
- Paul, G. S., Persons, W. S., & Van-Raalte, J. (2022). The Tyrant Lizard king, queen and emperor: Multiple lines of morphological and stratigraphic evidence support subtle evolution and probable speciation within the North American genus *Tyrannosaurus*. *Evolutionary Biology*. <https://doi.org/10.1007/s11692-022-09561-5>
- Pietroski, P. (2018). *Conjoining meanings: Semantics without semantic values*. Oxford University Press.
- Prosser, S. (2020). The metaphysics of mental files. *Philosophy and Phenomenological Research*, 100(3), 657–676.
- Putnam, H. (1975). The meaning of ‘meaning’. *Minnesota Studies in the Philosophy of Science* 7:131–193, reprinted in his (1979) pp. 215–271
- Putnam, H. (1979). *Philosophical papers: Volume 2, mind, language and reality*. Cambridge: Cambridge University Press.
- Quine, W. V. (1950). ‘Identity, ostension, and hypostasis’ in *from a logical point of view* (pp. 65–79). Harvard University Press.

- Radford, A., Atkinson, M., Britain, D., Clahsen, H., & Spencer, A. (1999). *Linguistics: An introduction*. Cambridge University Press.
- Rea, M. (1995). The problem of material constitution. *Philosophical Review*, 104(4), 525–552.
- Recanati, F. (1993). *Direct reference: From language to thought*. Blackwell.
- Recanati, F. (2012). *Mental files*. Oxford University Press.
- Recanati, F. (2016). *Mental files in flux*. Oxford University Press.
- Richard, M. (1981). Temporalism and eternalism. *Philosophical Studies*, 39(1), 1–13.
- Ridge, M. (2021). Individuating games. *Synthese*, 198, 8823–8850.
- Sawyer, S. (2003). Sufficient absences. *Analysis*, 63, 202–208.
- Schroeter, L. (2012). Bootstrapping our way to samesaying. *Synthese*, 189(1), 177–197.
- Sider, T. (2001). *Four dimensionalism: An ontology of persistence and time*. Oxford University Press.
- Strawson, P. (1974). *Subject and predicate in logic and grammar* (p. 2004). Methuen. Reprinted by Ashgate Press.
- Szabó, Z. G. (2000). *Problems of compositionality*. Garland.
- Thomasson, A. (1998). *Fiction and metaphysics*. Cambridge University Press.
- Travis, C. (1996). Meaning's role in truth. *Mind*, 105(419), 451–466.
- Walters, L. (2013). Repeatable artworks as created types. *British Journal of Aesthetics*, 53(4), 461–477.
- Wildman, N., & McDonnell, N. (2020). The puzzle of virtual theft. *Analysis*, 80(3), 493–499.
- Wilson, A. (MS). Classifying dependencies. *Unpublished manuscript*.
- Wittgenstein, L. (1953). *Philosophical investigations*. Blackwell.
- Zimmerman, D. (1998). Temporary intrinsics and presentism. In P. van Inwagen & D. W. Zimmerman (Eds.), *Metaphysics: The big questions* (pp. 206–219). Blackwell.

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