

DEPICTIVE VERBS AND THE NATURE OF PERCEPTION

JUSTIN D'AMBROSIO

Australian National University

This paper shows that direct-object perceptual verbs, such as “hear”, “smell”, “taste”, “feel”, and “see”, share a collection of distinctive semantic behaviors with depictive verbs, among which are “draw”, “paint”, “sketch”, and “sculpt”. What explains these behaviors in the case of depictives is that they are causative verbs, and have lexical decompositions that involve the creation of concrete artistic artifacts, such as pictures, paintings, and sculptures. For instance, “draw a dog” means “draw a picture of a dog”, where the latter occurrence of “draw” denotes a creative activity. While perceptual verbs are not obviously causatives, they have analogous decompositions involving noun phrases that denote modality-specific sense-objects, such as a sounds, smells, flavors, touches, and sights. Thus, “hear a trumpet” means “hear the sound of a trumpet”, and the same holds, *mutatis mutandis*, for verbs denoting the other sensory modes. If we take this analogy at face value, our perceptual reports will commit us to a form of the sense-datum theory of perception. While the analogy can be resisted, resistance requires taking on unexpected commitments.

Once, Turner had himself lashed to the mast of a ship for several hours, during a furious storm, so that he could later paint the storm.

Obviously, it was not the storm itself that Turner intended to paint. What he intended to paint was a representation of the storm.

One’s language is frequently imprecise in that manner, I have discovered.

David Markson, *Wittgenstein’s Mistress*

1. Introduction

Perceptual verbs such as “see”, “hear”, “smell”, “taste”, and “feel” are central to our practices of attributing perceptual states to agents. What kinds of states

Contact: Justin D’Ambrosio <justin.d’ambrosio@anu.edu.au>

do they attribute? At first sight, the answer seems simple. When used to report perceptions, these verbs are transitive. Transitive verbs express relations between the subject of a sentence and its direct object. Hence perceptual verbs attribute relations that hold between perceiving subjects and pieces of the environment. This seems to show that the semantics of perceptual reports favors the view that the objects of perception are ordinary concrete particulars, and that perception is a relation to these particulars. When we hallucinate, there may be no such object present, and so in such cases our direct-object perceptual reports will be false.

However, there is a debate that can be traced back to Ayer [1940], Moore [1952], and Anscombe [1965] over whether perceptual verbs are *intensional* or *extensional* transitive verbs.¹ If perceptual verbs are intensional, they have a reading that can be used to attribute states that are non-factive (or perhaps: not existence-entailing), and which is true in cases of both veridical perception and hallucination. Given this commonality, the direct-objects of such ascriptions, it seems, must be objects that exist in both veridical and hallucinatory cases, such as a properties or collections of properties. Thus, if the perceptual verbs above are intensional, it seems that their semantics favors a certain kind of representational view.²

This paper shows that both of these accounts of the semantics of direct-object perceptual ascriptions are at best incomplete. Perceptual verbs such as “hear”, “smell”, “taste”, “feel”, and perhaps “see” share a collection of distinctive behaviors with a little-discussed class of verbs: depictive verbs, among which are “draw”, “paint”, “sketch”, and “sculpt”. Depictive reports whose direct-objects are ordinary physical objects are analytically equivalent to reports whose direct objects are artistic artifacts in the relevant medium. For instance, “da Vinci drew a helicopter” is analytically equivalent to “da Vinci drew a picture of a helicopter”. Further, corresponding to each such pair of reports is an analytic by-statement: in this case, it is analytic that da Vinci drew a helicopter by drawing a picture of one. The same holds, *mutatis mutandis*, for other forms of depiction.

¹For example, Ayer [1940, 1956], Smythies [1956], Anscombe [1965], Hintikka [1969], Lewis [1983], Harman [1990], Chomsky [1995], Brogaard [2014, 2015], Bourget [2017a,b] all take perceptual verbs to exhibit at least some features of intensionality, while Austin [1962], Cartwright [1957], Dretske [1969], Jackson [1977], and Soames [2003], among many others, take perceptual verbs to be fully extensional.

²Views on which perception relates us, first and foremost, to properties, are defended by Dretske [1995, 2003], Johnston [2004], Lewis [1983], and Pautz [2007, 2010], among others.

Perceptual verbs exhibit exactly analogous behaviors. Perceptual reports whose direct-objects are ordinary physical objects are analytically equivalent to reports whose direct objects are *modality-specific sense-objects*, such as sounds, smells, flavors, touches, and (perhaps) sights.³ For instance, “da Vinci heard a trumpet” is analytically equivalent to “da Vinci heard the sound of a trumpet”. Again, like the depictive case, corresponding to each pair of such reports is an analytic by-statement; in this case, it is analytic that da Vinci heard a trumpet by hearing its sound.

In the case of depictive verbs, one independently plausible view that accounts for all of these features is that depictive verbs are causative verbs, and have lexical decompositions which involve the subject creating a concrete artistic artifact. Building on work by Graeme Forbes [2006], I propose a semantics for depictives on which, for example, “draw NP” is lexically decomposable into “draw a picture of NP”, where drawing a picture is a causal or creative notion. I then extend this analysis to perceptual verbs to account for their corresponding features. On the resulting view, perceptual verbs have lexical decompositions that are exactly analogous to those of depictive verbs, and involve noun phrases that denote sense-objects specific to the relevant sensory modality. For example, on this view, “hear a trumpet” means “hear the sound of a trumpet”, and other perceptual verbs have similar lexical decompositions involving the sense-objects appropriate to their modalities. While hearing sounds, smelling scents, and tasting flavors do not seem to be causal or creative notions, they play the same role as the causal notion involved in the decompositions of depictives.

This analysis has two striking consequences. First, it provides an explanation of why the sense-datum theory—the view that in perception, we are directly aware of mental objects that have the properties apparent in experience—had, and perhaps continues to have, such strong intuitive appeal. Taking the analogy between depictive and perceptual verbs at face value commits us to the view that the sense-datum theory is embedded in the semantics of our most basic perceptual language. Second, the analysis presents a challenge for any view in the philosophy of perception that wishes to vindicate our direct-object perceptual reports. The challenge is to provide a principled way of resisting the view

³As we will see, it appears that there is no NP specific to the visual modality that is analytically related to “see”. This point will be discussed at length below.

that modality-specific sense-objects such as sounds, smells, flavors, touches, and sights play the same role in perceptual reports that concrete artistic artifacts play in reports of depiction. Without such a principled distinction, we are left with two options: accept that we are committed to the sense-datum theory, or accept an error theory about direct-object perceptual reports. In the final section, I discuss a range of ways of providing principled resistance to the analogy.

2. Depictive Verbs

2.1. Depictive NP Substitution

Consider the following report involving a depictive, “draw”:

(1) Jonathan drew a dog.

On its face, (1) reports a relation between Jonathan and a dog: Jonathan drew a dog.⁴ However, in order to draw a dog, Jonathan must do something else: he must draw a concrete artifact—a *picture* of a dog. The reason that Jonathan must draw a picture of a dog is because drawing pictures is simply how one goes about drawing dogs: one draws dogs *by* drawing pictures. Moreover, these facts generalize to other forms of depiction.

We can begin to account for these behaviors by pointing to the fact that depictive verbs allow for the substitution of a distinctive kind of NP within their complements. Consider the following examples:

- (2) a. Jonathan drew a dog.
b. Jonathan drew a picture of a dog.
- (3) a. Turner painted the storm.
b. Turner painted a painting of the storm.
- (4) a. Da Vinci sketched a helicopter.
b. Da Vinci sketched a sketch of a helicopter.
- (5) a. Bernini sculpted Saint Teresa.

⁴The fact that “draw” is an intensional transitive verb, and gives rise to both notional and relational readings, will be discussed at length presently.

- b. Bernini sculpted a statue of Saint Teresa.⁵

The inferences from the (a)-sentences to the (b)-sentences in (2)-(5) are valid. In any instance of depiction, there must be some specific artifact created. These artifacts are denoted by the noun phrases in the object positions of the (b) sentences, such as “a picture of a dog” and “a sketch of a helicopter”.⁶ Call these noun phrases *depictive NPs*, and call the inference from (a) to (b) *depictive NP substitution*. The depictive NPs that can be validly substituted are ones that are specific to the artistic medium, which reflects the fact artistic activities each have their own distinctive medium, and each medium is associated with a distinctive kind of artifact. The result of sculpting cannot be a picture, and the result of drawing is not a statue; rather, one sculpts statues and draws pictures.

2.2. Properties

Not only do the (a)-sentences imply the (b)-sentences, but with a bit of work, we can see that the (b)-sentences likewise imply the (a)-sentences, and are thus *equivalent* to the (a)-sentences. In order to see this, we first need to recognize that depictive verbs are intensional transitive verbs (ITVs). ITVs are known to give rise to two readings: a relational reading and a notional reading. For example, (2) can be used to report that there is a particular dog outside in the yard, and Jonathan observed and drew *it*. But it also might be used to report that Jonathan drew a dog purely from imagination. In the former case, Jonathan is related to a particular dog, while in the latter case, he is not, or at least he need not be. In the case where Jonathan draws purely from his imagination, it does not follow that the dog he draws exists, nor need he be drawing a particular dog.

This ambiguity between notional and relational readings is not just present in ordinary depictive reports. Rather, it extends to depictive NPs, which are

⁵Here, and throughout, in giving examples involving depictives, I will generally use the past tense and perfective aspect, in an effort to avoid complications arising from the progressive. I will occasionally use the present tense for ease of expression, but I intend to refer only to events of drawing, painting, sketching, *etc.* that have culminated.

⁶I am ignoring the fact that there may be different names for the same kind of artifact: for instance, one can paint pictures or paint paintings. One possibility is that for each medium, there is a most general kind of artifact, and all other kinds of artifacts are special cases of the creation of this kind of artifact, but I will not pursue this point here. The key idea is that there is a distinctive type of artifact that gets created by each kind of artistic activity, and inferences that report the creation of such an artifact are always valid.

themselves ambiguous between notional and relational readings. Consider the depictive NP in (2), “a picture of a dog”. On the one hand, a picture of a dog need not be a picture of a specific, existent dog. It might simply be a picture of a dog, but not a specific one: a dog-picture. This shows us that depictive NPs can be interpreted notionally. But on the other hand, “a dog” in “a picture of a dog” may be interpreted specifically, so that “a picture of a dog” denotes a picture of a specific, existent dog: Fido. Thus, the ambiguity characteristic of intensional verbs generally (re-)appears with depictive noun phrases.

Given these facts about intensionality, we can now see that *depictive NP substitution* holds whether we interpret the (a)-sentences notionally or relationally, as long as we interpret the depictive NPs in the (b)-sentences in the same way. Consider the relational reading: if Jonathan drew a particular dog—namely Fido—then he drew a picture of a particular dog: Fido. Similarly, for the notional reading: if Jonathan drew a dog, but not a particular one, then he drew a picture of a dog, but not a picture of a particular dog.

Second, we can now see that the the converse of *depictive NP substitution*—the inference from the (b)-sentences to the (a)-sentences—is also valid on both readings, as long as we interpret the sentences consistently. If John drew a picture of a particular dog—Fido—then it follows that he drew a particular dog: Fido. In the notional case, if John drew a picture of a dog, but not a particular one, then it follows that he drew a dog, but not a particular one. Thus, we see that the notional reading of the (a)-sentences is equivalent to the notional reading of the (b)-sentences, and likewise for the relational reading.

It is highly plausible that the equivalence just illustrated is analytic, in the sense that the equivalence holds in virtue of the lexical meanings of the verbs involved. In other words, the fact that when we draw, we draw pictures is an aspect of the lexical meaning of “draw”, and similar things can be said about “paint”, “sculpt”, and “sketch”. As we will see later, the analytic nature of this inference is accounted for by the fact that these verbs are *causative* verbs whose lexical meaning involves the creation of medium-specific artistic artifacts.

However, in spite of this analytic equivalence, the depictive verbs in the (a)-sentences are being used in a slightly different way than those in the (b)-sentences. We can see this by recognizing that the inference does not iterate. While it follows from the fact that John drew a dog that he drew a picture of one,

it does not follow from the fact that John drew a dog that he drew a picture of a picture of a dog. As we will see below, the idea that the (b)-sentence articulates the tacit lexical content of the verb in the (a)-sentence accounts for this difference in meaning, and blocks the iteration of the inference.

Finally, corresponding to each pair of sentences in (2)-(5) are two *by*-statements, one corresponding to the relational reading and one to the notional reading. On the relational reading, it is analytic that Jonathan draws a particular dog *by* drawing a picture of a particular dog, and Turner paints a storm *by* painting a picture of a storm. On the notional reading, Jonathan draws a dog, but not a particular one by drawing a picture of a dog, but not a particular dog. What this appears to show is that schemata such as (6) are analytic:

(6) Jonathan drew NP by drawing a picture of NP.

For each depictive verb and medium-specific NP, there will be two schematic “by”-statements of the above form, each of which is analytic: one for the notional reading and one for the relational reading.

3. Perceptual Verbs

3.1. *Perceptual NP Substitution*

Now consider an ordinary perceptual report such as (7):

(7) Mary heard a trumpet.

Many of the things that we said about (1) we can also say about (7). For instance, on its face, (7) seems to report a relation that holds between Mary and a trumpet—Mary *hears* the trumpet. But in order for Mary to hear the trumpet, Mary must hear something else: the sound of a trumpet. Hearing sounds is simply how one goes about hearing trumpets; one hears a trumpet *by* hearing its sound.

As with the case of drawing and depictives, these facts about hearing appear to generalize to other forms of perception, although there is some question concerning how they generalize to the tactile and visual modalities. We can begin to see this by noting that perceptual verbs generally underwrite an inference pat-

tern that is nearly identical to *depictive NP substitution*. Consider the following examples:

- (8) a. Mary heard a car crash.
b. Mary heard the sound of a car crash.
- (9) a. Mary smelled a wet dog.
b. Mary smelled the scent of a wet dog.
- (10) a. Mary tasted the asparagus.
b. Mary tasted the flavor of the asparagus.
- (11) a. Mary felt the metal.
b. Mary felt the touch (feel) of the metal.
- (12) a. Mary saw the house.
b. Mary saw the (sight/image/appearance) of the house.
c. Mary saw the (color/shape) of the house.

Bracketing the visual case for the moment, it appears that just as with the depictive verbs above, in (8)-(11), the (a)-sentences entail the (b)-sentences, which differ from the (a)-sentences only in that their object-position noun phrases have been replaced by what I will call a *perceptual NP*, such as “the sound of a car crash”, “the scent of a wet dog”, and “the flavor of the asparagus”. Call the inference from the (a)-sentences to the (b)-sentences in (8)-(12) *perceptual NP substitution*. For any given (a)-sentence, the perceptual NPs that can be validly substituted will depend on the sensory modality of the perceptual verb. Just as each verb accepts only perceptual NPs that denote objects appropriate to that modality, each sense modality has a kind of sense-object appropriate to it, which we can call “modality-specific sense-objects”.⁷

However, in the visual case, there is no perceptual NP that can be naturally substituted for “the house” that yields an analytically equivalent sentence. In the case of (12-b), each of the proposed substitutions sounds, at best, strained. In the case of (12-c), the idea that when Mary sees the house, she sees its color or shape

⁷However, I do not intend for this label to suggest anything about the nature of these objects. In particular, the label is definitely not meant to convey that such objects are mental. I discuss the nature of modality-specific sense-objects in the final section.

seems plausible, but there will be cases where the inference fails. For instance, if Mary sees an object from very far away, it seems implausible that she sees either its color or its shape, even though she surely sees it.

One might try to preserve the inference in the visual case by defining “the sight of the house” in a particular way. For instance, a sense-datum theorist might define a the sight of a house as the collection of visual sense-data involved in seeing a house. Alternatively, one might define the sight of a house as the set of the house’s properties visually available to Mary from her position. One could then maintain that in any case of seeing a house, the subject sees the sight of a house. However, each of these proposals are stipulations, rather than pieces of lexical semantics. It seems that “the sight of” is not analytically related to the lexical meaning of “see” in the way that the other perceptual NPs are related to their respective perceptual verbs

The fact that “see” is distinctive in this respect is borne out by the fact that we observe the same pattern in other languages. Informally, I have checked that inferences like (8)-(10) are available and valid in at least Spanish, French, Italian, German, Yiddish, Hebrew, and Russian; (8)-(10) seem to be cross-linguistically robust. But inferences pertaining to the tactile and visual modalities, (11) and (12), vary in their degree of acceptability across these languages, and the visual form of the inference is particularly strained, if it is available at all. Most of these languages do not have a visual perceptual NP that yields an analytic equivalence.

For the rest of the paper, we can operate with the following presumption concerning the visual modality. The lexical semantics of “see”, unlike that of the other perceptual verbs, does not involve a perceptual NP that is distinctive to the visual modality. However, it is surely true that some visual *by*-statements are true: Mary sees a house by seeing *something*. We can then implicitly define what a sight is: a sight is whatever plays the role of P in the following schematic visual *by*-statement:

(13) S sees O by seeing the P of O.

Whatever instance of P makes (13) true will be the visual sense-object. However, this holds as a matter of metaphysics, rather than of semantics. We will return to the case of vision below.

3.2. Properties

Focusing on the modalities other than vision, a bit of work again reveals that *perceptual NP substitution* exhibits nearly exactly the same features as its depictive counterpart. Once we see how perceptual NP substitution interacts with intensionality, we see that in (8)-(11), not only is the inference from the (a)-sentences to the (b)-sentences valid, but the converse inference is also valid.

However, there is a *prima facie* disanalogy between depictive and perceptual verbs with respect to intensionality. While it is unquestionable that depictive verbs have both notional and relational readings, it is a matter of dispute whether perceptual verbs give rise to a notional reading. To take a traditional example, there is debate stretching back to at least Moore [1952] over whether there is a reading of “see” on which, in having his fatal vision, Macbeth *sees* a dagger. I think it is implausible that “see”, “hear”, and “smell” have such readings, although I do think that “perceive” and “sense” have them.⁸

In what follows I will assume that perceptual verbs have both notional and relational readings. Given this assumption, we will see that the *perceptual NP substitution* is valid on both the notional and relational readings of the reports. But if perceptual verbs turn out to lack a notional reading, it will not affect my main points; *perceptual NP substitution* will still hold on the relational reading of perceptual reports.

On the assumption that perceptual verbs are ITVs, the (a)-sentences in (8)-(11) have both notional and relational readings. But it seems highly plausible that if perceptual verbs exhibit the notional/relational ambiguity, then perceptual NPs as well.⁹ Thus, just as John might hear a car crash, without there being a particular car crash, Mary might hear the sound of a car crash, but not the sound of a particular car crash. She might hear a particular kind of sound: a car-crash sound.

⁸In other work I provide empirical data concerning the intensional profiles of a range of perceptual verbs. The results indicate that “perceive” and “sense” are significantly more intensional than “see”, “hear”, and “smell” with respect to all three features of intensionality. The latter verbs, in many cases, do not differ from paradigmatically extensional verbs, such as “hug” and “kick” in terms of their extensionality, while “perceives” in particular appears to approximate the behaviors of a paradigmatically intensional verb.

⁹As we will see below, it is plausible that perceptual NPs will exhibit the features of intensionality even if perceptual verbs do not. Thus, the conditional here may be true vacuously, since there is evidence for its consequent that is independent of the truth of the antecedent.

Given that the ambiguity extends to perceptual NPs, it becomes clear that perceptual NP substitution holds on both the relational and notional readings of the reports in the (a)-sentences. The (a)-sentences on their relational reading will entail the (b)-sentences provided that the perceptual NPs in the (b)-sentences are interpreted relationally. Similarly, the (a)-sentences on their notional readings will imply the (b)-sentences, provided the perceptual NPs in the (b)-sentences are interpreted notionally.

If we hold notional and relational readings constant, we then see that the converse inference is likewise valid. From the fact that Mary heard the sound of a particular car crash, it follows that she heard a particular car crash, and from the fact that she smelled the scent of a particular wet dog, it follows that she smells a particular dog. Thus, just as in the depictive case, we have an equivalence, and this equivalence is plausibly analytic. As with the depictive verbs above, “hear”, “smell”, “taste”, and “touch” appear to have medium-specific perceptual NPs involved in their lexical meaning.

However, like in the case of depictives, the analytic equivalence holds between entire perceptual verb phrases, not the verbs themselves. In (8), “hear” does not mean the same thing in the (a)-sentence as it does in the (b)-sentence. We know this because if it did mean the same thing, the inference would iterate: it would follow from “Mary heard a trumpet” that she heard the sound of a sound of a trumpet. As we will see, the verbs are being used in slightly different ways: the (b)-sentence articulates the tacit lexical material of the verb in the (a)-sentence.

Finally, to round out the analogy, each instance of *perceptual NP substitution* corresponds to an analytic *by*-statement. Mary heard the car crash by hearing its sound, she smelled the dog by smelling its scent, she tasted the asparagus by tasting its flavor, and she felt the metal by feeling its touch. Thus, in the case of hearing, the following schema will be analytic:

(14) Mary heard NP by hearing the sound of NP,

and similar schemata will hold for other perceptual verbs. If perceptual verbs exhibit the relational/notional ambiguity, then there will be two such schemata for each verb: one for the notional reading and one for the relational reading.

4. The Semantics of Depictives

The extensive analogy between the perceptual and depictive inferences above suggests the possibility of extending the semantics developed for depictives to perceptual verbs. Ideally, such an extension would provide us with an account of the analytic equivalence on both the notional and relational readings, while also yielding an analytic *by*-statement for each of these readings.¹⁰ The problem with this thought is that relatively little attention has been paid to the semantics of depictive verbs. Typically, treatments of depictive verbs classify them with intensional transitive verbs, but ignore the fact that unlike other intensional verbs, depictive verbs are verbs of creation.

However, there is one formal treatment of depictive verbs, due to Graeme Forbes [2006], that acknowledges the fact that depictive verbs are creative verbs, and analytically involve NPs denoting concrete artistic artifacts. The basic idea underlying Forbes' approach to depictives is to give a lexical decomposition of depictive verbs into a causal or creative notion and a depictive NP. Informally, Forbes analyzes (15) as (16):

(15) Jonathan drew a dog.

(16) Jonathan made a drawing of a dog.

In this case "draw" is decomposed into a combination of an auxiliary verb, "make", and a depictive NP: "a drawing of a dog". To decompose depictive verbs in this way is to treat them as a species of *causative* verb, much like "kill" is often taken to be decomposable into "cause to die". Forbes' idea is that to draw something is to make, or cause there to be, an artifact of the relevant kind, which is denoted by the depictive NP. Forbes then captures the intensionality of (15) through the intensionality of the depictive NP: (15) receives a notional reading just in case "drawing of a dog" receives a notional reading.¹¹

¹⁰One person who has discussed the analogy between depictive verbs and perceptual verbs is Marga Reimer [2015]. Reimer claims that there is a three-way analogy between "draw", "see", and "refer". However, Reimer does not provide a semantics for any of these three verbs, and the three-way analogy breaks down once we realize that "refer" does not exhibit a medium-specific substitution inference.

¹¹Here an going forward, "cul(*e*)" means that the event *e* has culminated. I add this to avoid complications stemming from the progressive aspect.

Forbes presents his view in an event-semantic framework. Formally, Forbes represents the semantics of the relational and notional readings of a depictive report as follows.

- (17) a. Jonathan drew a dog (relational reading)
 b. $\exists e$ (making(e) & cul(e) & agent(e)(Jonathan) & $\exists x$ (drawing)(x) & theme(e)(x) & $\exists y$ dog(y) & of(x)(y). Forbes [2006, p. 139, adapted to this example]
- (18) a. Jonathan drew a dog (notional reading)
 b. $\exists e$ (making(e) & cul(e) & agent(e)(Jonathan) & ($\exists x$ drawing(x) & theme(e)(x) & char(a(dog)))(x)

In the representations above, each instance of drawing is an event of making of which Jonathan is the agent. In each case, Jonathan makes something: a drawing. What differs across the two cases is the nature of the drawing. In the relational case, it is a drawing of a specific dog, which serves as the *theme* of the painting, while in the notional case, it is a drawing of a dog, but not a particular one—it is a “dog-drawing”. The idea that the drawing is a dog-drawing is captured with the help of a special thematic role, “char”, which is short for “characterized by”.¹²

Forbes’s view, however, falters when it encounters instances of *depictive NP substitution*, such as (19):

- (19) a. Jonathan drew a dog.
 b. Jonathan drew a picture of a dog.

The problem is that Forbes’ semantics yields the wrong results for sentences such as (19-b). When applied to (19-b), Forbes’ semantics yields the result that Jonathan made a picture of a picture of a dog. We can see this by looking at (20) and (21), where (20-b) and (21-b) are Forbes’ representations of the relational and notional readings of (20-a), respectively:

¹²“Char” is a special device that takes a generalized quantifier as an argument and returns something like an adjunct: it returns a property of events. This is what allows Forbes to capture the first two features of intensional transitive verbs: their lack of existential commitments and their nonspecificity. There is much more to say about characterization and notional readings, but little of that discussion will affect the points made here.

- (20) a. Jonathan drew a picture of a dog. (relational reading)
 b. $\exists e$ (making(e) & cul(e) & agent(e)(Jonathan) & $\exists x$ picture(x) & theme(e)(x)
 & $\exists y$ (picture-of-a-dog(y) & of(x)(y)).
- (21) a. Jonathan drew a picture of a dog. (notional reading)
 b. $\exists e$ (making(e) & cul(e) & agent(e)(Jonathan) & $\exists x$ picture(x) & theme(e)(x)
 & char(a picture of a dog)(x))

According to (20-b), Jonathan made a picture, and that picture was of a specific *picture* of a dog. According to (21-b), Jonathan made a picture, and that picture was a *picture-of-a-dog picture*. In both cases, Forbes' semantics yields the conclusion that Jonathan made a *picture of a picture of a dog*. While these readings are available for (21-a), they are very hard to hear, and most importantly, they do not follow from (20-a) via *depictive NP substitution*. Because Forbes' account makes only these strange readings available, and omits readings of sentences like (20-b) that are equivalent to (20-a), his semantics renders *depictive NP substitution* invalid. Hence, his account is inadequate.

The shortcoming of Forbes' view is that it overlooks a fact that we pointed out above: one can *draw* pictures, not just make them, and drawing pictures is different from drawing what those pictures depict. In *depictive NP substitution*, "draw" is being used in two subtly different ways. In order to modify Forbes' account, what we need to do is distinguish between two uses of depictive verbs: one which is creative, and takes depictive NPs as arguments, and another which is non-creative, and takes ordinary NPs as arguments. The idea is that in the creative sense, one draws pictures, but not what those pictures are *of*. In the non-creative sense, one does not draw pictures but rather draws what those pictures depict (unless one is literally trying to depict a picture).

Call the creative use of "draw" $draw_c$, short for draw_{creative}, and call the non-creative use of "draw" $draw_d$, short for draw_{depictive}. The creative use of "draw" takes an argument that denotes *what is created*, while the depictive use of "draw" takes an argument that denotes *what is depicted*. What we then want is for the following equivalence to hold for both the relational and notional readings:

- (22) Jonathan drew_d a dog \equiv Jonathan drew_c a picture of a dog.

In (22), one occurrence of "draw", on the left hand side, is the non-creative use

of “draw”, while on the right hand side, “draw” is used creatively. These two kinds of drawing are the kinds operative in *depictive NP substitution*, and in (19). In the (a)-sentences, the subject draws depictively, while in the (b)-sentences, the subject draws creatively.

The best way to account for this equivalence, along with the features we observed above, is to give a lexical decomposition of drawing_{depictive} in terms of drawing_{creative} a picture, and more generally, to give a lexical analysis of the depictive forms of depictive verbs in terms of their creative forms along with a depictive NP. On this view, “Jonathan draws_{depictive} a dog” is analyzed as “Jonathan draws_{creative} a picture of a dog”. The difference between drawing_d and drawing_c is that drawing_c a picture articulates the tacit lexical structure present in “draw_d”.

An analysis that relates drawing_d and drawing_c in this way is given in (23) and (24), which provide the decompositions of the relational and notional readings, respectively. The original depictive report is given in (a). The initial semantics for (a) is given in (b), which involves drawing_d, and then (c) gives the lexical decomposition of drawing_d in terms of drawing_c.

- (23) a. Jonathan drew_{depictive} a dog (relational reading)
 b. $\exists e$ (drawing_{depictive}(e) & agent(e ,Jonathan) & cul(e) & $\exists x$ (dog(x) & theme(e , x)))
 c. $v[\exists e(\text{drawing}_{\text{depictive}}(e) \ \& \ \exists x \ (\text{dog}(x) \ \& \ \text{theme}(e,x)))] = 1$ iff $\exists e$ (drawing_{creative}(e) & cul(e) & $\exists x$ (picture(x) & theme(e)(x) & $\exists y$ (dog(y) & of(x)(y))).
- (24) a. Jonathan drew_{depictive} a dog (notional reading)
 b. $\exists e$ (drawing_{depictive}(e) & agent(e ,Jonathan) & cul(e) & char(e ,[a dog]))
 c. $v[\exists e(\text{drawing}_{\text{depictive}}(e) \ \& \ \text{cul}(e) \ \& \ \text{char}(e,[a \ \text{dog}]))) = 1$ iff $\exists e$ (drawing_{creative}(e) & cul(e) & $\exists x$ (picture(x) & theme(e)(x) & char(a dog)(x)))

The analysis given in (23-c) and (24-c) analyzes the verb phrase “draw a dog”, which uses “draw” in its depictive sense, in terms of drawing a picture of a dog, which uses “draw” in its creative sense. The result is that we have an analytic connection between drawing_{depictive} (an object) and drawing_{creative} a picture (of that object).

This proposal straightforwardly accounts for the analytic nature of *depictive NP substitution* and its converse, as well as for the accompanying *by*-statements.

First, given that the proposal above is a lexical decomposition, the decomposition is equivalent to the decomposed sentence. But like traditional instances of lexical decomposition, such as “kill” into “cause to die”, and “seek” into “try to find”, the equivalence is analytic: the decomposition simply articulates the tacit lexical content of $\text{draw}_{\text{depictive}}$.

Further, it seems that treating the equivalence as a lexical decomposition entails that each pair of equivalent sentences will have a corresponding analytic *by*-statement. Showing that this analysis validates the corresponding *by*-statement would require taking a stand on the semantics of *by*-statements, which I will not do here. However, in general, lexical decompositions entail analytic *by*-statements. For example, Brutus kills Caesar by causing him to die, and Ponce seeks the fountain of youth by trying to find it. Thus, it seems that this decomposition will entail such a statement as well: Jonathan draws a dog by drawing a picture of a dog.

Finally, our analysis indicates that the creative use of depictive verbs has explanatory priority over the depictive use: what is explanatorily fundamental to an act of depiction is the creation of an artifact with certain features. Two features of our analysis support this view. First, in our analysis, the depictive use of depictive verbs is analyzed in terms of the creative use: we analyzed draw_d in terms of draw_c . Second, it is a widely held view on the nature of *by*-statements that they express a relation of explanatory priority or primacy between events or actions. For instance, many views treat *by*-statements as expressing a relation of relative basicness among events or actions [Danto, 1965, Hornsby and Goulder, 2011]. Others say that if $x \phi$ s by ψ -ing, then x 's ψ -ing *generates* ϕ [Goldman, 1970, Löbner, 2018], while still other say that ψ *explains how* an agent ϕ -s Schnieder [2009]. All of these views indicate that, insofar as an agent depicts something by creating an object that depicts that something, the creation of an artistic artifact is fundamental to instances of depiction.

5. Perceptual Verbs

Can we extend this kind of semantic proposal to perceptual verbs? Consider an instance of *perceptual NP substitution* that is analogous to the instance of *depictive NP substitution* from the last section.

- (25) a. Mary heard a trumpet.
 b. Mary heard the sound of a trumpet.

While this case is structurally analogous to that of depictives, the labels “creative” and “depictive” do not obviously apply—Mary does not create the sound of a trumpet, nor does the sound of a trumpet depict a trumpet. For the moment let us adopt the following terminology: let Mary’s hearing a trumpet, as in (25-a), be an instance of *distal* perception, and let her hearing the sound of a trumpet, as in (25-b), be an instance of *proximate* perception.¹³ We can then give an analysis of distal perception in terms of proximate perception in a way that is exactly analogous to the semantics for depictives given above. Further, since we are assuming that perceptual verbs have both relational and notional readings, our semantics for perceptual verbs will be analogous in this respect as well.

The modified Forbesian analyses of the relational and notional readings of (25-a) are given in (26) and (27), respectively. The intial semantics for distal hearing is given in (26-b) and (27-b), while the analyses are given in (26-c) and (27-c).

- (26) a. Mary heard_{distal} a trumpet. (relational reading)
 b. $\exists e$ (hearing_{distal}(e) & agent(e ,Mary) & cul(e) & $\exists x$ (trumpet(x) & theme(e , x)))
 c. $v[\exists e$ (hearing_{distal}(e) & $\exists x$ (trumpet(x) & theme(e , x)))] = 1 iff $\exists e$ (hearing_{proximate}(e) & cul(e) & $\exists x$ sound(x) & theme(e)(x) & $\exists y$ (trumpet(y) & of(x)(y)).
- (27) a. Mary heard_{distal} a trumpet. (notional reading)
 b. $\exists e$ (hearing_{distal}(e) & agent(e ,Mary) & cul(e) & char(e ,[a trumpet]))
 c. $v[\exists e$ (hearing_{distal}(e) & cul(e) & char(e ,[a trumpet])))] = 1 iff $\exists e$ (hearing_{proximate}(e) & cul(e) & $\exists x$ sound(x) & theme(e)(x) & char(a trumpet)(x))

This semantics analyzes the relational and notional forms of distal hearing in terms of Mary’s bearing the proximate hearing relation to two different modality-specific sense objects. In other words, for Mary to hear_{distal} a trumpet relationally or notionally is for her to hear_{proximate} sounds of two different kinds: the sound of a particular trumpet (relational), or a trumpet-sound (notional). Thus, the

¹³I do not wish to hang much on the terms—they are simply meant to be evocative terms for two different uses of a perceptual verb. How they relate to one another depends on a collection of theoretical choices.

relational and notional forms of hearing_{distal} are analyzed as instances of direct hearing to two different sounds—one denoted by an relational perceptual NP, and one denoted by a notional perceptual NP.

The result is that we have an analytic connection between hearing_{distal} something and hearing_{proximate} the sound of that something. This proposal straightforwardly accounts for the analytic nature of *perceptual NP substitution* and its converse, as well as for the accompanying *by*-statements. First, given that the proposal above is a lexical decomposition, the decomposition is equivalent to the decomposed sentence. But like traditional instances of lexical decomposition, such as “kill” into “cause to die”, and “seek” into “try to find”, the equivalence is analytic: the decomposition simply articulates the tacit lexical content of hear_{distal}.

Next, just as in the case of depictives, the lexical decomposition of “hearing_{distal}” into “hearing_{proximate} a sound” seems to entail a corresponding *by*-statement: Mary hears a trumpet by hearing its sound. Of course, showing that the semantics entails such a *by*-statement would require taking a particular stance on the semantics of *by*-statements. I will discuss the semantics of *by*-statements further below, but for now it will suffice to note that lexical decompositions generally entail corresponding analytic *by*-statements.

Finally, just as in the case of depictives, our analysis indicates that proximate perception is more fundamental than distal perception. Distal perception of an object *x* is analyzed in terms of proximate perception of a modality-specific sense-object that is *of x*. But further, corresponding to each instance of *perceptual NP substitution* are two analytic *by*-statements: one for the notional reading and one for the relational reading. These *by*-statements indicate that there is a relation of explanatory priority between proximate and distal perception.

6. Consequences

6.1. Commitment to the Sense-Datum Theory

In order to draw out the consequences of the above analysis, we can begin by giving an informal description of the analysis of depictives. In a case of depiction, an artist creates an artifact in a particular medium. Each medium is associated with a distinctive kind of artifact, and so the artist will create an artifact of a

specific kind: a drawing, a painting, a sculpture, *etc.* The relation that the artist bears to the artifact created differs from the relation that the artist bears to the thing depicted: the artist creates the depiction, but she does not create what the artifact depicts. The artifact created depicts something: it is of something, in either the notional or relational sense, and this “of” is the “of” of depiction. Finally, in creating the artifact, perhaps by drawing, the artist makes it the case that she likewise draws what the drawing is of.

We can isolate four key claims that hold on this account, which I here label D₁-D₄.

- D₁** Depictive NPs denote depictions, and depictions—including pictures, paintings, sculptures, and sketches—are concrete particulars that are distinct from what they depict.
- D₂** The relation that the artist bears to the thing depicted differs from the relation that the artist bears to the depiction itself: the artist has created the depiction, but she has not created what the artifact depicts.
- D₃** The sense in which depictions are *of* things—the sense in which, for instance, a picture of a dog is *of* a dog—is the depictive sense of “of”. Being *of* something in the depictive sense requires the depiction itself to instantiate certain properties.
- D₄** In cases of depiction, what is primary, or fundamental, is the relation that the artist bears to the concrete artistic artifact. That is to say, the creative use of depictive verbs is fundamental, while the depictive use is derivative, and analyzed in terms of the creative use.

Each of D₁-D₄ seem true in the characterization of depiction given above. However, if analogues of D₁-D₄ hold in the case of perception, then direct-object perceptual reports commit us to the sense-datum theory.

Now consider the case of perception. Just as depictions are made in different media, perceptions occur in different modalities, and just as each depictive medium has an artifact that is distinctive to it, each perceptual modality—perhaps excepting the visual modality—has a kind of object that is specific to it. Thus, when a subject hears, they are related to an object appropriate to the auditory modality: a sound. The object—in this case, a sound—is then *of* something

in the world in either the notional or the relational sense, typically something external to the medium. The relation that the subject bears to the thing in the world is different than the relation that the subject bears to its sound, smell, taste, *etc.* But in perceiving the modality-specific object—in hearing a sound—the subject hears what the sound is of.

We can now formulate P1-P4, the analogues of the features of the depictive case above.

P1 Perceptual NPs denote modality-specific sense-objects, and such objects—including sounds, smells, flavors, touches, and sights—are particulars that are distinct from what they are of (their sources).

P2 The relation that the perceiving subject bears to the modality-specific sense-object differs from the relation that the perceiving subject bears to the source: proximate perception is a different relation than distal perception.

P3 The sense in which modality-specific sense-objects are *of* things—the sense in which, for instance, the sound of a trumpet is *of* a trumpet—is the depictive sense of “of”. Being *of* something in the depictive sense requires the depiction itself to instantiate certain properties—the ones apparent in experience.

P4 In cases of perception, what is primary, or fundamental, is the relation that the perceiving subject bears to the modality specific sense-object. That is to say, the proximate use of perceptual verbs is fundamental, while the distal use is derivative.

If we accept these four claims, which render the perceptual case closely analogous to the depictive case, the result is that direct-object perceptual reports commit us to the sense-datum theory. A key feature of the sense-datum theory is that sense-data are particulars that are distinct from their sources. P1 guarantees that modality-specific sense-objects have this feature. Another feature of the sense-datum theory is that the relation that a subject bears to sense-data is distinct from the relation that the subject bears to objects in the world. This is clearly true, given P2. Further, according to the sense-datum theory, the relationship that holds between sense-data and objects in the world is a depictive relation: it is often times taken to be a matter of resembling the worldly objects.

This is guaranteed by P₃. Finally, on the sense-datum view, what is fundamental to perception is the perceiving subject's relation to a sense-datum, and the nature of that sense-datum. Perceiving the world is a matter of whether that sense-datum appropriately resembles—or depicts—the world. This feature of the sense-datum theory is guaranteed by P₄.

Of course, there are differences between the view just presented and the sense-datum theory. One important difference is that we have assumed that both perceptual verbs and perceptual NPs have intensional readings. This is something not countenanced by the sense-datum theory. Further, the view developed here, modality-specific sense-objects will always be *of* something, in either the notional or relational sense—the sense-datum theory does not countenance a notional sense of “of”. But given P₁-P₄, the basic principles of the sense-datum theory hold: in order to perceive the world, we must perceive a distinctive kind of particular, and these particulars must have certain properties such that they depict the world. We can perceive these particulars whether or not the world is as they indicate, and perceiving such particulars is fundamental to perception.

6.2. *The Challenge*

Above, we saw that if we take the analogy between depictive and perceptual verbs at face value, it shows that the semantics of direct-object perceptual reports encode the sense-datum theory. This presents a challenge for any view that wishes to vindicate our direct-object perceptual reports. Generally, the challenge is as follows: given that depictive and perceptual verbs exhibit such similar semantic behaviors, are there principled *semantic* differences between the two cases that allow us to resist P₁-P₄? More specifically, are there principled semantic distinctions between depictive NPs and perceptual NPs? Without such principled semantic differences, there appear to be only two options available: accept that direct-object perceptual reports commit us to the sense-datum theory, or accept an error theory about such reports.

Here I will discuss two ways of responding to these challenges, and discuss which views in the philosophy of perception can most naturally take advantage of the responses. The first way of addressing the challenge is to deny P₁, and to accompany this denial with a theory of modality specific sense-objects. One such theory is that modality-specific sense-objects are in fact *properties* ac-

cessible through a particular sense-modality. In claiming that modality-specific sense-objects are properties, we can likewise deny P3. If what we perceive are properties, then we can treat the “of” in perceptual NPs as the “of” of property-possession.

On the face of it, this general approach to resisting the analogy is one of which both representationalists and direct realists can avail themselves. Once one adopts the view that modality-specific sense-objects are modality-specific properties, what differentiates between the direct realist and the representationalist is that the direct realist holds that we can only perceive properties when they are instantiated. By contrast, the representationalist will allow that in every case of perceptual experience, we perceive a property, and in cases of hallucination, these properties will be uninstantiated. In this form, the view resembles the view, developed by Dretske [1995, 1999, 2003], Johnston [2004, 2014], and McGinn [1999], among many others.

However, there are reasons why this proposal may not be available to the direct-realist after all. Perceptual reports involving perceptual NPs appear apt for reporting hallucinations. Consider the following sentences as used to report hallucinations:

- (28) a. Mary heard a door slamming.
- b. Mary heard the sound of a door slamming.

- (29) a. Mary smelled a roast.
- b. Mary smelled the scent of a roast.

- (30) a. Macbeth saw a dagger.
- b. Macbeth saw the shape and colors of a dagger.

In each of the above pairs, the (b)-sentence seems plausibly true in cases where the subject is hallucinating, while the (a)-sentence seems, if not false, at least questionable. Of course, there is significant debate about whether the (a)-sentences are in fact false in cases of hallucination, but it helps the direct realist’s cause if we grant that they are false. The fact that the (b)-sentences seem true appears to show that even if perceptual verbs do not have intensional readings, *perceptual NPs* may still have such readings. If the direct realist holds that perceptual NPs denote properties, it seems that those properties will be available as the ob-

jects of perception whether or not they are instantiated. That is to say, there are reasons to think that the view that perceptual NPs denote properties favors a representationalist theory of perception, rather than a relational one.

However, there is a second way of resisting the analogy that is more promising for the direct realist: deny P2. Denying P2 likewise forces us to deny P4: if hearing a trumpet just is hearing the sound of a trumpet, then neither event can be more fundamental than the other. While this approach is not plausible in the case of depiction, it may seem more plausible in the case of perception because perception does not seem to be a creative notion. The perceiving subject does not create or cause the modality-specific sense-objects, like the artist creates depictions.

According to the view on which perceiving the sound of something is just is perceiving that thing, and likewise for the other modalities, there is a constitutive relationship between perceiving a modality-specific sense-object and perceiving what that object is *of*. What it is to perceive an object in the world is just to perceive a sound, smell, taste, touch, or sight of a certain sort. Proponents of this approach commit themselves to a number of controversial semantic and metaphysical theses. First, they must commit themselves to the view that *by*-statements express identities: they commit themselves to the so-called Anscombe-Davidson thesis, which says that if $x \phi$ s by ψ -ing, then x 's ϕ -ing is identical to x 's ψ -ing. However, this flies in the face of semantic orthodoxy: most current approaches to the semantics of *by*-statements entail that the Davidson-Anscombe thesis is false.¹⁴

Further, this approach leaves us with residual metaphysical questions. On the face of it, modality-specific sense-objects are vastly different kinds of things than their sources, which are concrete objects or events. Once we have made the distinction between distal and proximate perception, it is natural to ask: which one is more fundamental to perception? Which one reveals perception's true structure? Someone who denies P2 and P4 must answer this question with "neither." On their view, distal and proximate perception are two different ways of talking about the same event. But the worry is that this approach is unprincipled. If we are forced to preserve the distinction between proximate and distal percep-

¹⁴For instance, see Goldman [1970, 1971], Hornsby and Goulder [2011], and Schnieder [2009], among many others.

tion in the case of depiction, why can we collapse it in the case of perception? It appears that the direct realist has no response to this question.

7. Conclusion

The above analysis reveals a striking semantic analogy between depictive verbs and perceptual verbs. Accounting for the semantic behaviors of both classes of verbs required us to distinguish between two uses of these verbs: in the depictive case, between creative and depictive uses, and in the perceptual case, between proximate and distal uses. Having distinguished these two uses, taking the analogy between depictives and perceptual verbs seriously entails that the objects of proximate perception are, in effect, sense data. On the one hand, this offers us a new linguistic account of why the sense-datum theory is such a persistent view: given the analogy, the view is embedded in our most basic perceptual language. But on the other hand, it also presents a challenge to views that wish to maintain that direct-object perceptual reports are true: avoiding commitment to the sense-datum theory requires the adoption of certain semantic and metaphysical views that until now have been thought wholly separate from issues in the philosophy of perception.

References

- G. E. M. Anscombe. The intentionality of sensation: A grammatical feature. In Ronald J. Butler, editor, *Analytic Philosophy*, pages 158–180. Blackwell Publishers, 1965.
- J. L. Austin. *Sense and Sensibilia*. Oxford University Press, Oxford, 1962.
- Alfred J. Ayer. *The Foundations of Empirical Knowledge*. Macmillan, London, 1940.
- Alfred J. Ayer. *The Problem of Knowledge*. Penguin Books, Edinburgh, 1956.
- David Bourget. Intensional perceptual ascriptions. *Erkenntnis*, 82(3):513–530, 2017a.
- David Bourget. Implications of intensional perceptual ascriptions for relationalism, disjunctivism, and representationalism about perceptual experience. *Erkenntnis*, 2017b.
- Berit Brogaard. Seeing as a non-experiential mental state: the case from synesthesia and visual imagery. In Richard Brown, editor, *Consciousness Inside and Out: Phenomenology, Neuroscience, and the Nature of Experience*, Studies in Mind and Brain, pages 377–394. Springer Netherlands, 2014.

- Berit Brogaard. Perceptual reports. In Mohan Matthen, editor, *Oxford Handbook of the Philosophy of Perception*. Oxford University Press, Oxford and New York, 2015.
- Richard Cartwright. Macbeth's dagger. In *Philosophical Essays*, pages 13–20. The MIT Press, reprinted 1987 edition, 1957.
- Noam Chomsky. Language and nature. *Mind*, 104(413):1–61, January 1995.
- Arthur Danto. Basic actions. *American Philosophical Quarterly*, 2:141–148, 1965.
- Fred Dretske. *Seeing and Knowing*. University of Chicago Press, Chicago, 1969.
- Fred Dretske. *Naturalizing the Mind*. The Jean Nicod Lectures. The MIT Press, 1995.
- Fred Dretske. The mind's awareness of itself. *Philosophical Studies*, 95:103–124, 1999.
- Fred Dretske. Experience as representation. *Philosophical Issues*, 13(1):67–82, 2003.
- Graeme Forbes. *Attitude Problems*. Oxford University Press, Oxford, 2006.
- Alvin Goldman. *A Theory of Human Action*. Prentice-Hall, New York, 1970.
- Alvin Goldman. The individuation of action. *Journal of Philosophy*, 68:761–774, 1971.
- Gilbert Harman. The intrinsic quality of experience. *Philosophical Perspectives*, 4: Action Theory and the Philosophy of Mind:31–52, 1990.
- Jaako Hintikka. On the logic of perception. In *Models for Modalities*, pages 151–183. Dordrecht: Reidel, 1969.
- Jennifer Hornsby and Naomi Goulder. Action. *Routledge Encyclopedia of Philosophy*, 2011.
- Frank Jackson. *Perception: A Representative Theory*. Cambridge University Press, Cambridge, UK, 1977.
- Mark Johnston. The obscure object of hallucination. *Philosophical Studies*, 120(1-3):113–183, 2004.
- Mark Johnston. The problem with the content view. In Berit Brogaard, editor, *Does Perception Have Content?*, chapter 5. Oxford University Press, New York, NY, 2014.
- David Lewis. Individuation by acquaintance and by stipulation. *Philosophical Review*, XCII(1): 3–32, Jan 1983.
- Sebastian Löbner. Cascades. goldman's level-generation, multilevel categorization of action, and verb semantics. Heinrich-Heine-Universität, Düsseldorf, 2018.
- Colin McGinn. The appearance of color. In *Knowledge and Reality: Selected Essays*. Clarendon Press, Oxford, 1999.
- G. E. Moore. A reply to my critics. In P. Schilpp, editor, *The Philosophy of G.E. Moore*, volume IV of *The Library of Living Philosophers*, pages 533–667. Northwestern University Press, Evanston and Chicago, 1952.
- Adam Pautz. Intentionalism and perceptual presence. *Philosophical Perspectives*, 21:495–541, 2007.
- Adam Pautz. Why explain visual experience in terms of content? In Bence Nanay, editor,

Perceiving the World, pages 254–309. New York, 2010.

Marga Reimer. Drawing, seeing, referring: Reflections on macbeth's dagger. In Andrea Bianchi, editor, *On Reference*. Oxford University Press, 2015.

Benjamin Schnieder. 'by': A refutation of the anscombe thesis. *Linguistics and Philosophy*, 31: 649–669, 2009.

John Raymond Smythies. *Analysis of Perception*. Routledge, London, 1956.

Scott Soames. *Philosophical Analysis in the 20th Century Vol. 2: The Age of Meaning*. Princeton University Press, Princeton, NJ, 2003.