



# Cognitive Focus

Julie Wulfemeyer<sup>1</sup> 

Received: 11 September 2020 / Accepted: 23 February 2021 / Published online: 11 March 2021  
© Springer Nature B.V. 2021

## Abstract

Philosophers of mind and language who advance causal theories face a sort of conjunction problem. When we say that the thing had in mind or the thing referred to is a matter of what causally impacted the thinker or speaker, we must somehow narrow down the long conjunction of items in a causal chain, all of which contributed to the having in mind, but only one of which becomes the object of thought or the linguistic referent. Here, I sketch a notion of cognitive focus intended to do this narrowing. The notion borrows three key aspects from visual focus and some technological aides—causation, amplification, and suppression. I suggest a broader application of this framework to address the conjunction problem not only in ordinary contexts of perceptual focus but also in evidence cases involving non-perceptual cognitive focus. I further suggest cognitive focus is helpful in distinguishing referential vs. attributive thought.

## 1 Introduction

Causal theorists of mind and language often face a familiar sort of objection.<sup>1</sup> If the causal theorist wishes to claim that what a thinker thinks of (or what a speaker refers to) is a matter of what has causally impacted their mind, the objection runs, they owe an account of what determines *which* cause in a perhaps impossibly long chain of them is the salient one—that is, the one that ultimately becomes the object of thought or the linguistic referent.

For clarity, this problem should be distinguished from a problem of another sort. We sometimes hear of disjunction problems according to which one and the same mental state *could* have been caused by either  $x$  or  $y$  (though only one of them

---

<sup>1</sup> I will center the sort of causal-historical account given in Donnellan (1966), Donnellan (1979), and Devitt (1981). More recent developments of this sort of account abound. See, for example, Almog (2004), Almog (2012), Almog, Nichols, and Pepp (2015), Capuano (2015), and Capuano (2018). What I say here may well apply in a range of other causal-historical accounts.

---

✉ Julie Wulfemeyer  
julie.wulfemeyer@mnsu.edu

<sup>1</sup> Minnesota State University, 227 Armstrong Hall, Mankato, MN, USA

actually *did* cause it); what is owed in response to this problem is some way of accounting for what makes it *x* and not *y* that a subject *S* is thinking of or referring to, despite *S*'s mental state “matching” (in some sense) the one that might have been caused by *y*.<sup>2</sup> Though certainly worthy of its own discussion, I wish to set this kind of disjunction problem aside, centering instead a sort of *conjunction* problem. The conjunction problem arises not because more than one thing *could* have caused the same thought, but because, in a sense, more than one thing *did*. Any causal chain is, after all, a chain with multiple links, all of which cause or at least contribute to causing the effect. But as causal chains are employed in causal accounts of mind and language, only one link in the chain is truly relevant—the one that *S* is thinking of or referring to. The conjunction problem demands a means of explaining why one is relevant and the others are not.<sup>3</sup> My goal in this paper is to sketch a response to the conjunction problem that doesn't fall back on the same descriptivist tools the causal theorist seeks to do without. To accomplish this, I'll employ the notion of *cognitive focus*.

## 2 Cognitive Focus

The idea of cognitive focus is certainly not new in philosophical literature. Bianchi and Bonanini (2014) attribute to Donnellan a notion of cognitive focus that underlies referential power. As they write, “in Donnellan's opinion what takes precedence here is not the history of the name but the cognitive focus, historically determined, of the speaker when using it” (2014, p. 192). Reference requires, on Donnellan's account, that the speaker focus on a particular referent to the exclusion of others. Dickie (2015) also makes a kind of cognitive focus central to singular thought about objects. To achieve cognitive focus on Dickie's account is to “tune in” to those objects (2015, p. 1). Though I do not intend here to import the epistemic components of Dickie's account—i.e. those involving belief and justification—the “tuning in” metaphor seems quite useful (more on this later). Pepp (2012) presented what she called the Focus Picture according to which referring expressions “allow us to focus on things whose effects in our minds might otherwise not be detected” (2012, p. 121). Pepp's notion of attunement further seems to explain individual- and species-level differences in our abilities to focus. As Pepp explains, “A human being's visual or auditory system may have a certain built-in attunement. For instance, a human with 20–20 vision can distinguish blades of grass at a certain distance in full light, fields of grass at some other distance, and so on. The attunement can be altered by the addition of apparatus like eyeglasses, microscopes, etc. Attunements can also

<sup>2</sup> See Fodor (1984) on disjunction problems.

<sup>3</sup> This way of putting it is perhaps reminiscent of a third problem, the *qua* problem identified in Devitt (1981) and Devitt and Sterelny (1999). This is the problem of explaining why some relevant perceptual contact is with an object *x* rather than a “time slice or undetached part” of *x* (1999, 79). I believe the *qua* problem is distinct from the conjunction problem discussed here, as the *qua* problem seems focused on distinguishing different potential causes rather than different actual links in a causal chain. That said, it may be possible for the the *qua* problem and the conjunction problem to converge if, for example, one viewed spatial or temporal parts of an object as its causal effects.

be altered by training and experience. One can learn to hear a cello distinctly in a string quartet performance, to taste tannins distinctly in a sip of wine, or to see camouflaged animals distinctly in their camouflaged environment” (2012, p. 125).

To understand the role played by cognitive focus here, I think it’s useful to look in particular at cases where there’s a sort of “before and after”—that is, where one comes to detect something at a point in time  $t$ , enabling us to distinguish a *before t* and an *after t* and ask what has changed. I will initially stick to perceptual before-and-after cases, but I will incorporate a range of perceptual modalities. So consider the visual case where one suddenly sees a hidden word in a word search after several minutes of staring at it. There is a moment at which the word suddenly and quite literally comes into focus; one *sees it* where one hadn’t before. Similarly, consider the audio case where one listens to a chorus of neighborhood dogs barking, then suddenly realizes, having focused on a single familiar bark within that chorus, that one’s own dog is among the offenders; one hears that single dog where one had previously heard only the group. There is likewise a moment where one singles out the thyme in the soup or the amber in the perfume; here, too, there is a moment at which one focuses on a single element as part of a more complex perception. Lastly, we can point to tactile examples: one rummages for keys in a purse or feels around for one’s glasses on a nightstand. As in the word search, one perhaps senses all or part of the searched-for item several times before it suddenly comes into focus, distinct from the surrounding items. One suddenly singles out the keys or the glasses where one had previously felt only a combination of several objects—a phone, a pen, etc. The searched-for item, in other words, is touched before it is found; it is found only when the object comes into focus out of a previously felt jumble.

In what is for many the most vivid case, that of visual perception, we understand this kind of focus as being connected to the role of excitatory and inhibitory neurons. We are bombarded with photons bouncing off the surfaces of all manner of items all the time. But we are nonetheless able to focus on one to the exclusion of others precisely because we can amplify some visual signals while dampening others. And when we leave the perceptual system for a moment to revisit Dickie’s (2015) apt metaphor for cognitive focus—the idea of “tuning in”—we can see deep parallels. Radio tuners work by separating and amplifying one out of what might be thousands of radio signals picked up by the antenna; the tuner amplifies one while suppressing the others. A good microphone likewise picks up and amplifies a podcaster’s voice while ignoring (or suppressing, or dampening) ambient noises coming from refrigerators, air conditioners, and traffic. And, as noted by Pepp (2012), microscopes and telescopes allow one to separate out one single visual signal where perhaps the naked eye would be able to detect only a bundle of them. These devices essentially amplify one signal—the signal from this cell or that star—while “ignoring” or eliminating others from view.

In both the visual and technological cases above, there is a kind of focus at work with at least these three key elements: there is (a) causal impact, (b) the amplification of one signal, and (c) the suppression of other signals. In the visual case, we have the causal impact of many items upon my retina, the amplification of some signals via excitatory neurons, and the suppression of others via inhibitory neurons. In the radio case, we have the causal impact of many radio signals upon the antenna,

with a tuner amplifying one and suppressing others, and similarly for the microphone, microscope, and telescope cases. Perhaps a similar story can be told for the before-and-after cases previously discussed. Many dogs causally impact my auditory system, but there is a moment where I am able to amplify one signal while suppressing the others. And similarly for signals from spices, perfume notes, and objects rattling around in my purse.

On some level, this explanation seems simple and plausible enough. This is not, of course, to say that there are no unanswered questions about these processes or that the average non-specialist has anything approaching a crystalline understanding of how they or their technological aids “focus.” But it seems to me that this combination of (a) causal impact, (b) amplification, and (c) suppression provides a useful framework for understanding cognitive focus more generally. We can think of the technological cases as providing analogues of cognitive focus while the perceptual examples for each of the five senses provide literal examples of it.

We can perhaps get further mileage by applying this framework not only to perception but also to capacities like memory and imagination. When pressed, a witness might examine their rich but jumbled memory of a chaotic scene to pull out a single detail about the car they saw speeding away. Obviously, the witness was impacted by many objects at the scene, giving way to a memory that results from many signals—signals not only from many objects but also from many sensory modalities. The task of recalling the speeding car involves amplifying the memory of that visual signal—amplifying the causal impact of the car upon her visual system—while simultaneously suppressing other signals, such as those involving the visual impacts of other objects, a variety of sounds, and the feeling of being startled. Similarly, when a witness describes an offender’s face to a sketch artist, further dissection of her memory might be required to complete the task well; the witness might need to focus on one facial feature at a time, temporarily amplifying the signal from his jawline while suppressing signals from other features that have impacted her memory. Perhaps something similar is plausible in imagination as well as memory. Perhaps a visual artist or novelist can imagine a busy, complex scene and then amplify and suppress their way to focusing on one aspect of it at a time to complete their works. I am assuming here, of course, that the world provides causal inputs to imagination just as it does with memory, and that these inputs can be alternately magnified and ignored.

### 3 The Conjunction Problem in Direct Perception

The notion of cognitive focus in play here can be used in response to the conjunction problem discussed earlier. To see this most easily, it helps to keep in mind the version of the conjunction problem that presents in ordinary, everyday, direct visual perceptions. In any given visual perception, we are causally impacted by a number of objects at once. I don’t just mean that many objects enter the visual field at once, but that there are, as countless others have noted, many objects involved even when we narrow down that field to one object of sight. When I look out the window to see the mail carrier on his route, I am impacted not only by the man, but also (as part of

the mechanism of my seeing him) by photons, by my glasses, and by my own retina. Questions naturally arise as to why, on a causal account, I think and refer to him but not the photons, not my glasses, and not my retina. I'm inclined to think that what we say to narrow the *visual* field (to say I focus on him and not the tree to his left, though I see both) can likewise be said to narrow the *causal* field as well. There are multiple causal chains in play even in these simple cases, though some have overlapping segments. There is, for example, one causal chain linking me to the photons, and another, longer, partially overlapping one linking me to the mail carrier. Cognitive focus is a matter of amplifying one causal chain (like one visual signal) while suppressing others.

#### 4 The Conjunction Problem in Evidence Cases

The conjunction problem also presents a challenge in evidence cases. As I'll define them, evidence cases are those in which a subject detects an object via information left in its causal wake without directly perceiving it in the usual sense. A classic example of an evidence case is the Neptune case discussed in Donnellan (1979) and Kripke (1980). The astronomer Le Verrier reportedly discovered Neptune by way of the orbital disruptions of another planet; without directly perceiving Neptune in the usual sense, Le Verrier was able to detect it by way of its causal residue. Some further examples of this sort include an art patron detecting a subject via a painting, an investigator detecting a murderer via a tire track or the smell of gun powder, a home inspector detecting a water problem by effervescence or the smell of mold, or a doctor detecting SARS-CoV-2 via lung damage revealed in an x-ray. The causal chains in such cases are obviously quite complex. Even at the very beginning level of detail, we already get chains such as these:

subject→painter→painting→art patron  
 murderer→car→tire track→investigator  
 water leak→mold→musty odor→home inspector  
 virus→lung damage→x-ray→doctor

Filling in the details of these mechanisms for detection would of course produce even longer chains. The usual objections can, of course, arise here against the causal theorist. In virtue of what, on the causal account, does the patron think of the subject and not the painter? In virtue of what does the investigator think of the murderer and not his car? In virtue of what does the home inspector think of the water leak and not the mold? In virtue of what does the doctor think of the virus and not the lung damage? For that matter, what prevents us from reaching further back into causal history to say these individuals think of the painting subject's grandmother, the murderer's difficult childhood, the storm that produced the water, or the virus's patient zero? What prevents the whole thing from collapsing into thought of the Big Bang? Just as there is a causal chain between a thinker and an object of thought, there are countless other causal chains in the mix—some longer, some shorter, and some with

overlapping segments. In virtue of what does S think of any one entity in any one of the chains over any of the other apparent candidates?

It may be that we can rule out some of these possibilities by appeal to a lack of Peppian attunement.<sup>4</sup> I cannot detect the Mona Lisa's grandmother or the cause of her smirk by seeing a portrait of her (even assuming she exists—empty cases are of course another matter) because my cognitive system is not properly attuned for the task. This might be explained as a product of evolutionary history and personal experience or lack thereof, among other possible factors. I can infer that these things must have existed—she must have had a grandmother, she must have been smirking about something—but I cannot think of them directly. Thus, although these entities existed as links in causal chains that reach me, they are not candidates for objects of thought because I am not attuned to them in Pepp's sense.

But there are many candidates that cannot be ruled out in this way. If Le Verrier can think of Neptune by way of those disruptions in the orbit of another planet, surely he can think of that orbit and that other planet as well. Similarly, I think an investigator could detect both a murderer and his gun by smelling the gun powder at the crime scene, and both the murderer and his car by seeing the tire track. I assume in standard cases, in fact, that the investigator *does* detect all of these things in a way that enables direct thought about them. What makes it the case that the investigator thinks of one vs. another on a given occasion is, I would suggest, a matter of cognitive focus. That is, while there are distinct causal chains with overlapping segments running from the murderer to the car to the tire track to the investigator, the investigator can alternatively amplify one and suppress the others. It doesn't seem a great stretch to apply this framework—which is needed anyway to account for ordinary visual perception and radio tuners—to evidence cases. As a matter of fact, it really is a different causal chain that stretches from the tire track to the investigator vs. from the murderer to the investigator (one is longer and involves more contributing objects, or "links"); and similarly, it really is a different causal chain that stretches from that other planet to Le Verrier vs. from Neptune to Le Verrier. That these chains contain overlapping segments shouldn't lead us to collapse them into one. One and the same causal mechanism can produce multiple direct, two-place relations between thinker and object(s), just as one and the same legal mechanism can, in one fell swoop, make one both a spouse and a step-parent.

## 5 Cognitive Focus and Mistaken Identity

Beyond the conjunction problem, the notion of cognitive focus may prove helpful for other types of problem cases. We might think of these as cases that in one way or another involve a sort of mistaken identity. Consider, for example, the case presented in Kripke (1977) wherein two people see Smith in the distance and mistake him for Jones. One asks, "What's Jones doing?" The other replies, "Raking the leaves." This case presents a problem because there are (at least) two potentially relevant causal chains—one originating with Jones and one originating with Smith—though the

<sup>4</sup> See Pepp (2012), p. 125.

speakers do not realize it. The notion of cognitive focus can shed light here; though both Jones and Smith have causally impacted the speakers at one time or another, in the moment, it is the signal from Smith that is amplified while others are suppressed, as he's the one standing before them, impacting their visual systems, and he is the one whose activity is in question.

A related case originates in Evans (1973). Here, Evans discusses the phenomenon of reference-shifting using the case of Madagascar. The name "Madagascar" originally referred to a portion of the African mainland, but Polo landed on an island off its coast and mistakenly used the name to refer to it. Polo's usage took off and is now standard. As in the raking leaves example, this case is one where the speaker (in this case Polo) had been causally impacted by two distinct objects without realizing it; Polo had been impacted by mainland Madagascar in virtue of having heard of it, and by the island Madagascar in virtue of having landed on it. But at the time of the key reference-shifting use, the signal from the island on which he stood was the one that was amplified while others were suppressed—that is, his focus (and thus his thought and his use of the name) was directed at the island, though he was causally and cognitively connected to the mainland as well.<sup>5</sup>

## 6 Cognitive Focus and Attributive Thought

As a final point, I'd like to mention that the notion of cognitive focus can be employed to do work regarding our ability to think about not only individuals but also pairs, pluralities, kinds, species, and properties. Seeing and thinking of a pair of candlesticks involves weeding out that signal from the signals of other surrounding objects, including perhaps the vase and the bit of wall showing between them. Seeing and thinking about the color of a sofa requires amplifying one aspect of it while suppressing others: ignoring the texture and weight of the fabric, the size and shape of the arms, and so on. It's perhaps beyond question that we perceive all of these things more or less at once, and that there are overlapping causal chains as we do. But we can focus on one to the exclusion of others: we amplify and suppress when it comes to properties as well as individuals and pairs.

In my view, this makes thinking of properties every bit as outside-in, causal, and world-bound as thinking of individuals is. Donnellan (1966) wanted to distinguish having-in-mind (the cognitive underlay of linguistic reference on his account) from something more inside-out, as in the attributive use of descriptions. But the notion of cognitive focus proposed here leaves room to say it's *all* direct, world-to-mind, and to be explained by causal history, not just the individual-bound "referential" cases. The difference between referential and attributive thought on this view becomes, again, a matter of cognitive focus. In referential thought, one is perhaps focused on an individual, while in attributive thought, one is focused on an attribute (or feature, or property). The two cases corresponding to Donnellan's well-known martini question ("Who is the man drinking the martini?") are both cases of world-bound cognition in which the object of thought is determined by causal history—it's

<sup>5</sup> See also, e.g., the Aston-Martin case in Donnellan (1970).

just that in one case the object is the person in the speaker's line of vision, while in the other case the object is the property of being a man drinking a martini. With the notion of cognitive focus in play, even the paradigm case of inside-out thinking can instead be understood in outside-in, causal-historical terms.

## 7 Objections and Replies

Before closing, I'd like to address a few anticipated worries about this kind of picture. First, resistance may sometimes come as a result of over-emphasis on the epistemic question of how S might know which thing S is cognitively related to.<sup>6</sup> Particularly if one thinks of cognitive relations as being mediated by representations, it is tempting to worry that one might be unable to distinguish one thought (one cognitive relation) from another one might have. Instead, I want here to emphasize the metaphysical question, from the viewpoint of a Donnellian omniscient observer, of which worldly items S is causally (and thus potentially cognitively) related to, rather than the epistemic question of whether and how, from her own limited perspective, S might know or be able to find out. This is because it seems entirely possible to me that S might be cognitively focused on an object *x* without "knowing which" object *x* is—that is, without being able to uniquely describe *x*, distinguish *x* from other objects, or recognize *x* if S were to focus on it again. But this local epistemic inability shouldn't lead us to believe there's no metaphysical fact of the matter about which thing S is focused on.

A second concern might center on concepts and recognition. One might object that in the before-and-after cases, what's really happening is not that something is *coming into cognitive focus* for S, but rather that something is being *recognized as* \_\_\_\_\_, where this means that S is in some sense engaged in the inside-out process of applying concepts as opposed to the outside-in process of weeding out and amplifying one signal over others. Here, it might be argued that I recognize a certain scent as amber, or recognize a series of printed letters as tokens of the word "dissolve," or recognize an object as my glasses, not by weeding out one signal from the world, but by applying the appropriate concept to reach out to it. One potential reply to this objection is that to recognize *x* as anything, I must already have a prior cognition of *x*. I don't think I could recognize a scent *as* amber unless I had already weeded out that particular signal coming *from* the amber (or as a former colleague once called it in a play on "photons": those amber "smelltons") from the jumble of others in the perfume. It seems one must already separate that signal from others in order to successfully compare it to past experiences or a concept of amber. Similarly, to recognize a series of letters as the word "dissolve," I must already have weeded out the signal of those letters from those surrounding it in a word search or simply on a page of text. And in order to recognize a felt object as being my glasses, I must have separated that tactile signal (those "feeltons") from others coming from the phone, the pen, and the lamp base nearby. In other words, the cognitive focus on *x* must precede any recognition one might do on the basis of it.

<sup>6</sup> Russell (1956) seemed particularly concerned that we in some sense know our own thoughts.



A final objection—and frankly I think a quite fair one—is that this is all in some sense too vague and metaphorical. What I'm suggesting here is that we borrow a certain framework from vision science and radio technology and apply it to causal fields, where it's not clear what precisely that would look like at, say, a neural level. If the worry is that this cannot be the final step in a complete answer to the conjunction problem, I agree. But my hope is that applying this general framework offers a promising lead toward a more complete answer.<sup>7</sup>

## Declarations

**Conflict of Interest** The author declares no competing interests.

## References

- Almog, J. (2004). The proper form of semantics. In M. Reimer & A. Bezuidenhout (Eds.), *Descriptions and beyond* (pp. 390–419). Oxford: Oxford University Press
- Almog, J. (2012). Referential uses and the foundations of direct reference. In J. Almog & P. Leonardi (Eds.), *Having in mind: The philosophy of Keith Donnellan* (pp. 176–184). New York: Oxford University Press
- Almog, J., Nichols, P., & Pepp, J. (2015). A unified treatment of (pro-) nominals in ordinary English. In A. Bianchi (Ed.), *On reference* (pp. 350–383). Oxford: Oxford University Press
- Bianchi, A., & Bonanini, A. (2014). Is there room for reference borrowing in Donnellan's historical explanation theory? *Linguistics and Philosophy*, 37(3), 175–203
- Capuano, A. (2015). Thinking about an individual. In A. Bianchi (Ed.), *On Reference* (pp. 147–172). Oxford: Oxford University Press
- Capuano, A. (2018). In defense of Donnellan on proper names. *Erkenntnis*, 1–24
- Devitt, M. (1981). *Designation*. New York: Columbia University Press
- Devitt, M., & Sterelny, K. (1999). *Language and reality: an introduction to the philosophy of language*. MIT Press
- Dickie, I. (2015). *Fixing reference*. Oxford: Oxford University Press
- Donnellan, K. (1966). Reference and definite descriptions. *Philosophical Review*, 75(3), 281–304
- Donnellan, K. (1970). Proper names and identifying descriptions. *Synthese*, 21(3/4), 335–358
- Donnellan, K. (1979). The contingent a priori and rigid designators. In P. French, T. Uehling, & H. Wettstein (Eds.), *Contemporary perspectives in the philosophy of language* (pp. 12–27). Minneapolis: University of Minnesota Press
- Evans, G. (1973). The causal theory of names. *Proceedings of the Aristotelian Society, Supplementary Volumes*, 47, 187–208
- Fodor, J. A. (1984). Semantics, Wisconsin style. *Synthese*, 59(3), 231–250
- Kripke, S. (1977). Speaker's reference and semantic reference. The contingent a priori and rigid designators. In P. French, T. Uehling, & H. Wettstein (Eds.), *Contemporary perspectives in the philosophy of language* (pp. 255–296). Minneapolis: University of Minnesota Press
- Kripke, S. (1980). *Naming and necessity*. Harvard University Press
- Pepp, J. (2012). Locating semantic reference. (PhD diss., University of California, Los Angeles)
- Russell, B. (1956). On denoting. In R. Marsh (Ed.), *Logic and knowledge: essays 1901–1950* (pp. 41–57). London: Allen and Unwin

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

<sup>7</sup> I deeply appreciate the anonymous reviewer comments and suggestions that improved this manuscript.