WHAT IS IT TO HAVE A LANGUAGE?

BY

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Abstract: This article defends the view that having a language just is knowing how to engage in communication with it. It also argues that, despite claims to the contrary, this view is compatible and complementary with the Chomskyan conception of language on which humans have languages in virtue of being in brain states realizing tacit knowledge of grammars for those languages.

1. Introduction

What is it to have a language? What is it, as Lewis (1975) influentially asked, for a possible language to be *the actual language* of a speaker?[1] Philosophers who, like Lewis, view language as the social use of signs for communicating will say that to have a language is to partake in a convention to use it as a system of communication. This has had the status of being 'the received view'. As Dummett puts it, 'it is essential to language that it is a common instrument of communication' (1981, p. 139).[2]

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[1]I follow (Lewis, 1975) in identifying possible languages with functions from expressions to meanings, an identification that (Chomsky, 1980) finds 'traditional and reasonable as a point of departure' (p. 82). In this, I agree with Chomsky that every 'serious approach to the study of language departs from common sense usage' of 'language', 'replacing it by some technical concept' (1997, p. 5). Thus, I will not be concerned with the question of what it is for a speaker to count as speaking English or French qua socio-historical phenomena. For readability, however, I sometimes use 'English' to refer to the function from what we call 'English expressions' to the meanings they have for us.

[2]Elsewhere, Dummett writes that the 'view that might claim to represent common sense is that the primary function of language is to be used as an instrument of communication' (1989, p. 192). In an apparent agreement, Evans states that if 'one's interest is in the phenomenon of language itself, one must be concerned with the way in which it functions as a means of communication among speakers of a community' (1982, p. 67). Kripke also agrees; what it is to be 'a normal speaker of [a] language' is taken to be a matter of participation 'in the life of [a] community and in communication' (1982, p. 92).

Its apparent rival is the Chomskyan, psychobiological account of language. On this view, to have a language is to tacitly know its grammar by being in a certain brain state, and our capacity for such tacit knowledge – and so our capacity for language – functions primarily to subserve private thought, not public communication. Defenses of this account often include arguments that language is not socio-conventional communication.[3] Most prominently, Chomsky calls any view on which communication is anything but 'peripheral' to language a 'virtual dogma' with 'no serious support' (2015, pp. 14–16).[4]

I accept the dogma. I defend the following view, on which communication is not merely peripheral to language:

> COMMUNICATIONISM: Necessarily, a speaker has a language L just if they know how to engage in communication with L.

As Kamp and Reyle announce: 'Languages are for communication. To know a language is to know how to communicate with it' (1993, p. 7).[5] My aim is to show that COMMUNICATIONISM is ultimately in deep concord with the psychobiological account.

COMMUNICATIONISM is one way of making precise the core of the received view of language. Many find this view so obvious as to require no defense, and have advanced theses in its neighborhood without argument.[6] To make up for this, I defend COMMUNICATIONISM in Section 2.

But I do not defend the whole of the received view; I depart from it in not analyzing language-having in conventional terms. Really, *two* ideas are at play in the received view: (1) that language-having should be understood somehow in terms of communication and (2) that communication is conventional. Rarely are (1) and (2) treated as independent. And it is easy to see

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[3]See Collins (2008, pp. 137–139); Hornstein (1984, pp. 118–119, 150–151); Isac and Reiss (2008, pp. 38–39, 72–75); Ludlow (1999, pp. 17–26; 2011, pp. 44–47); and Smith and Allott (2016, pp. 235–237).

[4]He argues that 'language is not properly regarded as a system of communication', that communication is 'of no unique significance' for understanding 'the nature of language' (Chomsky, 2002a, p. 76), and that empirical research based on a 'language-as-communication' model is on that account 'misdirected' and 'seriously misguided' (Berwick and Chomsky, 2016, p. 79, 84).

[5]See also Harman (1967), in which being 'competent' with L, in Chomsky's sense (which I take to be equivalent to having L), is said to consist in 'knowing how to speak and understand a language' (p. 75): 'Competence is knowledge in the sense of knowing how to do something' (p. 81). Dummett (1975,1976) endorses a similar view, on which having a language consists in 'practical knowledge': 'what [one] has when [one] knows the language is practical knowledge, knowledge how to speak the language' (1976, p. 69).

[6]For instance, Stalnaker simply proceeds against the background assumption that a 'language is a device for conveying information […] in order to communicate' (2014, p. 23). Grice does so as well, theorizing about languages, 'communication devices', and 'communication systems' in the same breath (1989, pp. 284, 286–88, 296); he says linguistic expressions are essentially 'instruments of communication', such that language use without communication is 'conceptually impossible' (p. 367). And for McDowell, 'the essentially communicative nature of language […] seems obvious' (1980, p. 36).

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why. Someone's having a particular language is naturally attributable to conventional forces. By appeal to the arbitrariness of the sign, it is arbitrary that the language of the French is one in which 'chèvre' means *goat* rather than *ox*. This looks like the work of convention. If it is, then, supposing (1), it is natural to think that the conventions fixing our language must be communicative conventions, and so it is natural to endorse (2). Moreover, if we suppose (2), then it is natural to view the conventionality of communication as *explaining* the conventionality of language, by endorsing (1). So (1) and (2) pair nicely if language is socio-conventional.

But it is not. Someone with no society could have a language, as I will argue. So COMMUNICATIONISM rightly incorporates (1) but not (2). Moreover, by jettisoning (2), COMMUNICATIONISM is in less tension with the Chomskyan view, a view that entails, contra the received view, that, in principle at least, anyone with the right neural wiring can have a language no matter the social surround.

In the end, there is no tension, for it turns out that the Chomskyan view of language actually bolsters COMMUNICATIONISM, despite many suggestions to the contrary.[7] For, as I will argue, if we in fact have languages by tacitly knowing their grammars, and if this tacit knowledge is realized by some state of our brain, that state only realizes knowledge of grammar *because* it gives rise to knowledge of how to engage in linguistic communication. In other words, the brain-based faculty of language of, say, a human English-speaker, bestows English as their language *because* it bestows on them knowledge of how to engage in communication in English.

This paper is in two parts. In the first part, I argue for COMMUNICATIONISM and against the socio-conventionality of language. Along the way, I explain how COMMUNICATIONISM allows for people with linguistic impairments to have languages, even if they only know how to use sentences in inner speech. And I reply to two worries from Chomsky: that COMMUNICATIONISM is implausible or otherwise problematic because (i) a language can be shared by those whose communicative capacities wildly vary and (ii) a language is not optimized or evolutionarily designed to facilitate communication.

Then, in part two, I argue that COMMUNICATIONISM is not in tension with the psychobiological conception of language; rather, it is compatible and complementary with the view that humans have languages by being in brain states that realize tacit knowledge of grammars.

In the end, I do not provide a decisive argument for COMMUNICATIONISM. Instead, I argue for its viability and that it is not out of line with the place of language in the scientific image.

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[7]Chomsky repeatedly argues that having a language is not a skill (1968, pp. 25–26, 37–38, 190–191; 1980, pp. 101–102; 1988, pp. 9–12; 1997, pp. 12–15; 2000b, pp. 51–52) and cannot consist in know-how (1980, p. 110–122; 1984, p. 11–13; 1986, p. 9–13; 1988, p. 9–12; 2000b, p. 50–53). I address his arguments in Sections 2.2–2.4.

2. *Knowing how to engage in communication*

COMMUNICATIONISM accounts for language-having in terms of communication.[8] What is communication? In the paradigm case, it involves productive speech on the part of the speaker and comprehending audition on the part of the listener. On the production side, communication involves saying (or otherwise tokening) a sentence and in doing so *meaning* (i.e., *speaker-meaning*) something. And on the comprehension side, receiving a communication involves discerning that someone *meant* something in saying a sentence. So, roughly, COMMUNICATIONISM says that having a language consists in knowing how to engage in this activity of meaning things by saying sentences or of interpreting others as doing so.

But what is it exactly that we know how to do when we know how to engage in communication with a *particular* language L?

2.1. KNOWING HOW TO ENGAGE IN COMMUNICATION WITH L

Here is a proposal. When we know how to engage in communication with a language L (a function from sentences to propositions[9]), this is either because we know how to systematically mean $L(S)$ in saying a sentence S of L or because we know how to systematically discern that someone meant $L(S)$ in saying S (or because we know how to do both). The *systematicity* requirement is important here because ordinarily, it should not be a coincidence that those engaged in communication with L mean or discern what is meant in these ways. As such, communication involves something like systematic *rule-following*.

One way to make this precise is as follows:

COMMUNICATIVE KNOW-HOW: For any speaker x and language L, x knows how to engage in communication with L just if and because x knows how to follow the rule SPEAK$_L$ or the rule LISTEN$_L$ in producing or comprehending sentences.[10]

SPEAK$_L$: Say S of L only if you thereby mean $L(S)$!

LISTEN$_L$: If someone says S of L, interpret them as meaning $L(S)$!

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[8]By 'communication', I always mean *linguistic communication*.

[9]I follow Lewis (1975) in modeling sentence-meanings as propositions for ease of exposition.

[10]Note that COMMUNICATIVE KNOW-HOW does not entail the false principle that whenever a speaker systematically follows SPEAK$_L$ or LISTEN$_L$, they thereby engage in communication with L. This principle is false because a speaker might follow SPEAK$_L$ in, say, drafting a letter without *thereby* engaging in communication. And this principle does not follow from COMMUNICATIVE KNOW-HOW because, in general, if knowing how to ϕ is always based in knowing how to ψ, it does not follow that ψ-ing entails ϕ-ing. For example, although knowing how to summit Everest is based in knowing how to mountaineer with great skill, mountaineering with great skill does not entail summiting Everest.

But no account of communicative know-how this specific will be presupposed in what follows.[11] All that will be presupposed is that it essentially involves knowing how to systematically comprehend what speakers mean or knowing how to systematically produce through acts of meaning.

Communication is thus a disjunctive phenomenon. We can engage in communication as a speaker or as a listener. And so one can know how to engage in communication by knowing how to comprehend or produce sentences. After all, some know how to do one but not the other. And they can engage in communication and have languages nonetheless. A person with aphasia might have impaired production but relatively unimpaired comprehension, or vice versa, depending on where their impairment is neurologically localized.[12] Paralysis might impair or disable linguistic production while leaving comprehension intact. And deafness and blindness might do the same for comprehension while leaving production intact. In either case, one might retain one's language either by knowing how to systematically comprehend sentences or by knowing how to systematically produce them.

What about someone whose sole linguistic capacity is knowing how to 'think in English'? Such a person might not know how to engage in *outward* communication, perhaps due to becoming blind, deaf, or mute at a young age, but might still know how to use English in inner speech. Could they have English as their language on this basis while lacking outward communicative know-how? This case requires special treatment.

2.2. INNER SPEECH

I think COMMUNICATIONISM can accommodate cases of even the most severely impaired language-havers and that this is a key point in its favor. If someone only knows how to speak inwardly to themselves, then, I argue, they have actually retained productive communicative know-how. Even though they are restricted to manifesting this know-how in inner speech, COMMUNICATIONISM still counts them as language-havers.

Why think inner speech manifests communicative know-how? Well, consider the case of self-directed outer speech first. When you talk to yourself out loud, you systematically produce sentences verbally and speaker-mean things by doing so. If someone were to eavesdrop on you talking to yourself, they might rightly wonder 'What do they (speaker-)mean by that?'. Thus,

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[11]Those convinced of Lewis's (1975) account of communication might replace SPEAK and LISTEN with the following:

TRUTHFULNESS$_L$: Say S of L only if you believe $L(S)$!

TRUST$_L$: If someone says S of L, believe $L(S)$!

But I think this would be a mistake. There is clearly an important sense in which we can engage in communication without convincing each other of anything (and without trying to). Sometimes communication succeeds just because we manage to express ourselves or understand each other. I return to Lewis's view in Section 2.5.

[12]See Clark and Cummings (2003) for a discussion of the variety of forms of aphasia.

knowing how to talk to oneself out loud has the same basis as productive communicative know-how. So, if a speaker only knows how talk outwardly to themselves, they would nonetheless count as knowing how to engage in communication.

And the same goes for a speaker who only knows how to talk inwardly to themselves; they also count as knowing how to engage in communication. After all, inner speech is a form of *speech*.[13] The outer case and the inner case only relevantly differ in their *medium*. Inner speech equally involves speaker-meaning things to oneself by producing sentences, but via 'silent soliloquy' (Ryle, 1949, p. 27). If you could eavesdrop on someone's inner speech, which seems technologically possible, you could rightly ask 'What do they (speaker-)mean by that?'.[14] This suggests that our capacity for inner speech, like our capacity for outward self-directed speech, is based in communicative know-how. If so, an impaired speaker who can only engage in inner speech will nonetheless count as knowing how to engage in communication.

Crucially, I have not argued that inner speech is a form self-directed communication. Rather, I have argued only that if a speaker knows how to engage in inner speech, then they thereby possess know-how (i.e., knowledge of how to speaker-mean things by producing sentences) the possession of which is sufficient for knowing how to engage in communication.[15] This is all that is necessary in order for COMMUNICATIONISM to accommodate speakers who can only engage in inner speech.

That said, I do not think it is too implausible to go further and to treat inner speech as a form of communication. Consider telepathic communication. If it is possible for communication between two to proceed by one's telepathically projecting a sentence into the other's mind, then communication might proceed within one by one's non-telepathically projecting a sentence into one's own mind.[16]

Chomsky (1975b) worries that if we adopt a 'concept of "communication"' as including communication with oneself, that is, thinking in words' in inner speech, then the view of language 'as "essentially" a means of communication' fortuitously 'collapses' into the opposing view that language 'is "essentially" a system for expression of thought' (p. 57), and by this, he

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[13]That inner speech is 'real speech' defended in Gregory (2016). But even if inner speech is merely imagined speech – or even if it involves a hallucinatory, false representation that one has performed an act of inner speech – it is still speech. Speech includes all acts of saying a sentence; saying 'Goats eat cans' is speech, and so saying 'Goats eat cans' to yourself is speech. If inner speech involves no production of mental sentence-tokens, this means that not all speech involves producing sentence-tokens. Perhaps we can say 'Goats eat cans' by imagining ourselves verbally uttering 'Goats eat cans' or by inducing in ourselves a hallucination that we internally uttered such a token.

[14]I thus disagree with Davis's (1992) claim that we do not speaker-mean things in inner speech (pp. 229–230).

[15]See fn. 10 on why this does not entail that engaging in inner speech entails engaging in communication.

[16]For other arguments that inner speech is a form of communication, see Gauker (2018) and Frankish (2018).

means a system for expressing thought in inner speech.[17] But his worry is ill-founded. It is not true that if communication includes speaker-meaning things to ourselves in inner speech, then COMMUNICATIONISM collapses into what we might call 'THOUGHTISM': that to have a language is to have the capacity to internally express one's thoughts in that language in inner speech.[18]

To see this, note that COMMUNICATIONISM accommodates the possibility of language-havers who are incapable of inner speech but can engage in communication in outer speech. THOUGHTISM does not allow for these cases. And their possibility cannot be denied. Some people with aphasia have unimpaired outer speech but impaired inner speech, while others are incapable of inner speech but retain their capacity for outer speech comprehension.[19] So THOUGHTISM and COMMUNICATIONISM do not collapse into one if inner speech is communication.[20]

2.3. VARIATION IN SPEAKERS' LINGUISTIC ABILITIES

One upshot of the above discussion is that COMMUNICATIONISM accommodates speakers with diverse linguistic capacities nevertheless knowing how to engage in communication with the same language and, in virtue of that, sharing a language. This puts to rest the objection to COMMUNICATIONISM from Chomsky (1992) that having a language cannot be a matter of having practical knowledge because people with very different linguistic abilities can nevertheless share a language. He argues that 'knowledge of language' – which I take to be equivalent to *having a language* – cannot consist in 'an ability that can be exercised by speaking, understanding, reading, talking to oneself, and so on' for the following reason: one's linguistic abilities can vary, due to 'injury or disease', while one's knowledge of language 'remains constant':

suppose that Jones, a speaker of some variety of what we call "English" in informal usage, improves his ability to speak his language by taking a public-speaking course, or loses his ability

[17]Here, Chomsky is responding to Searle (1972), who defends the view that the 'purpose of language is communication' while claiming that we communicate 'when we talk or think in words to ourselves'.
[18]THOUGHTISM should not be confused with what I have been calling 'the psychobiological view'. The former says nothing of tacit knowledge of grammar. And so it is best thought of as auxiliary to the latter.
[19]These cases, as well as the potential disassociation of overt and inner speech more generally, are discussed in Geva et al. (2011), Langland-Hassan *et al.* (2015), and Stark *et al.* (2017). Of particular note is Levine *et al.* (1982), which discusses a patient with hemiparesis who became mute and suffered a 'complete loss of inner speech' while retaining spoken comprehension, written comprehension, and written production, thereby retaining knowledge of how to engage in communication (p. 391).
[20]Moreover, COMMUNICATIONISM on its own is not clearly inconsistent with THOUGHTISM. And I say half of THOUGHTISM is correct: if you know how to speak inwardly in L, then you know how to engage in communication with L in inner speech, and so you must have L. But its other half is counterexemplified by the cases mentioned in fn. 1, as well as by young children, who surely have languages, but in whom inner speech develops after the acquisition of language and outward communicative competence (see Geva and Fernyhough, 2019).

because of an injury or disease, then recovering that ability, say, with a drug. […] In all such cases, something remains constant, some property K, while ability to speak, understand, and so on, varies. In ordinary usage, we say that K is knowledge of language; thus Jones's knowledge remained constant while his ability to put his knowledge to use improved, declined, recovered, and so on. (pp. 103–104)

This is no objection to COMMUNICATIONISM as I formulate it, for knowledge of how to engage in communication with a language can be fully had by speakers who are better or worse at manifesting it (or who lack the ability to engage in communication, if ability and know-how are distinguished).[21]

Chomsky claims that this reply – claiming that 'property K' just is the property of having some ability or piece of practical know-how, shared by the impaired and the unimpaired – can only be made if one 'departs radically from [the] ordinary usage' of 'ability', '[contriving] a new technical sense of the term "ability"': call it *K-ability*', and meaning *that* by 'ability', something that is 'completely divorced from ability' (pp. 103–104).

I think this is mistaken. First, even if talk of language consisting in a 'practical ability' needs to be carefully interpreted as talk of language consisting in know-how, this is no contrivance. Know-how is surely not 'completely divorced' from ability.[22] And it is not as if 'know-how' is a technical term of art.

Second, the fact that a property F can be had by two people, one of whose abilities are vastly different, improved versions of the other's, does not entail that having F does not consist in having practical knowledge and does not entail that having F could only involve having an 'ability' in some technical sense. Compare: an amateur and a grandmaster might equally know how to play chess, and thereby share the ability to play chess, even though the grandmaster's chess-related abilities far surpass the amateur's.[23]

2.4. THE EVOLUTIONARY FUNCTION OF LANGUAGE

Another potential problem with COMMUNICATIONISM voiced by Chomsky is that it seems to not sit well with the live scientific hypothesis that the human language capacity did not evolve because it enables

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[21]Chomsky might grant this point. For although he unambiguously denies that language is a practical ability, he has expressed openness to the idea that language might have something to do with know-how of a cognitive variety with a 'crucial intellectual component' (1980, p. 55; see also 1975a, pp. 316–18; 1975b, pp. 165, 223; 2000b, pp. 169–70). But he nowhere expresses openness to COMMUNICATIONISM; in Chomsky (1997), he clarifies his position as one which is inconsistent with it, on which language 'yields' communicative know-how, which 'of course does not exhaust' it (p. 12).

[22]In the good case, a speaker's linguistic know-how manifests in their linguistic abilities; the latter reflects the former.

[23]See Devitt (2011) (pp. 324–326) for further discussion of Chomsky's arguments against identifying knowing a language with practical knowledge. And see Pereplyotchik (2017) (pp. 153–180) for a detailed discussion of Devitt's view that knowing a language consists having certain skills grounded in 'embodied procedural knowledge' of grammar. As far as I can tell, my view is compatible and convergent with Devitt's.

communication, or that the function of language is not to enable, or to be used for, communication. Berwick and Chomsky (2016) argue for this at length and reject COMMUNICATIONISM on its basis. They hypothesize that the 'modern doctrine' that language is a system of communication is 'mistaken'; rather, language evolved as an 'instrument' for the private expression of thought (p. 102), an 'internal mental tool' enabling inner speech (p. 81).

I say the Berwick–Chomsky hypothesis is compatible with COMMUNICATIONISM and not even evidence against it. Compare: Suppose we said that to be *musical* just is to know how to play a musical instrument. Whether this is true is independent of whether the human biological capacity for musicality evolved because it enables us to play musical instruments, as it easily may not have. This capacity may have been selected for some other reason. Conceivably, genes that strengthen our immune system, and that are adaptive for that reason, bestow our capacity for musicality as an evolutionary side-effect. Likewise, it is irrelevant to whether language-having is a matter of communicative know-how that the human capacity for language did not evolve to facilitate communication.

Ultimately, COMMUNICATIONISM is silent on the evolutionary function of language. Suppose it is to enable inner speech, as Berwick and Chomsky suggest. COMMUNICATIONISM only entails that having a language is related to the fulfillment of this function in the same way that communicative know-how is related to its fulfillment. So, if language-having was selected for because it enables inner speech, then, if COMMUNICATIONISM is true, it must also be true that communicative know-how was selected for because it enables inner speech. This is not implausible. For, as I have argued, if a human knows how to engage in communication with L, then, *ceteris paribus* (i.e., barring certain linguistic impairments) they will possess the capacity for inner speech in L. And so it makes sense to propose that the former was selected for based on of the evolutionary benefit of the latter. So I think one can easily endorse both COMMUNICATIONISM and the view that human language evolved as an instrument for inner speech.

At this point, the Chomskyan might argue that even if COMMUNICATIONISM is compatible with language's function being non-communicative, the latter fact reveals that COMMUNICATIONISM is explanatorily idle with respect to the character of human language, which only makes sense in light of its non-communicative function. For because language did not evolve for communication, it is a poorly optimized medium for communication.[24] Natural language expressions exhibit ambiguity, polysemy, and complex

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[24]Thus, the 'counterfunctionality' of language for communicative purposes is taken to be strong evidence that communication is not language's evolutionary function. See Newmeyer (1998) for a discussion.

syntactic properties that only get in the way of successful communication. So, if we ask 'Why are words in our language ambiguous?', it seems COMMUNICATIONISM, even if true, will not figure in the answer. We know how to engage in communication with our language despite our language's ambiguousness. Communicative know-how is surprising given ambiguity. So how can the former explain the latter?

I think this concern can be overcome. To see this, let us unpack it in argument form:

(P1) If COMMUNICATIONISM is true, then the specific linguistic facts about our language must be explained in terms of our communicative competence.

(P2) But our communicative competence is surprising in light of these facts; the latter hinder the former.

(P3) And, generally, if X is surprising given Y and Y hinders X, then X does not explain Y.

If (P1)–(P3) are true, then COMMUNICATIONISM is false. Although I grant (P2) and find (P1) plausible, I think we should not endorse (P3).

To see why, first note that (P1)'s plausibility depends on which notion of 'explanation' is read into COMMUNICATIONISM. And (P1) is most plausible, I think, if it is read such that it entails that a fact like (i) in some sense constitutes or grounds (ii):

(i) We know how to engage in communication with English.

(ii) We have English. For suppose, inspired by Lewis (1975), we also endorse constitutive explanations like (iii):[25]

(iii) 'bank' is ambiguous for us just if (and because) we have some language L such that 'bank' is ambiguous in L.

Then, given standard assumptions, the truth of the right-hand side of (iii) will be witnessed and hence grounded by (ii) plus the fact that 'bank' is ambiguous in English, and so it will be partially grounded by (ii). Now, because (i) grounds (ii), then, if partial grounding is transitive, it follows that (i) partially grounds the fact that 'bank' is ambiguous for us. So, if we read something like grounding into COMMUNICATIONISM, then, arguably, (P1) is true.

But the problem is that (P3) is plausibly false if read as a thesis about grounding-backed explanations. For although it is strange to say that the semantic fact that 'bank' is ambiguous for us is partially grounded (and so

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[25]See also Schiffer (1993). This metasemantic strategy is to ground linguistic facts about speakers in terms of facts about which languages they have, together with necessary facts about those languages qua abstracta.

explained) by a fact that it hinders, this sort of strangeness is commonplace. Often X partially grounds Y even though X is surprising in light of Y or Y hinders X.

Here are two cases:[26] First, imagine a perfectly transparent glass sphere into which red beams of light are calculatedly directed such that its surface looks opaquely red. Presumably, the facts about the sphere's physical makeup will at least partially ground, together with the facts about its illumination, the fact that it looks opaquely red. So it looks opaquely red in part because it is transparent, even though the former is surprising in light of the latter.

Second, imagine that we manufacture a perfect sphere of titanium t. The fact that t is a man-made perfect sphere grounds the fact that t is a man-made spheroid. But the grounding fact here is shocking in light of the grounded fact.

Now, there is much that could be said about both cases from a ground-theoretic perspective. But I think we can zoom out and see that the general phenomenon here does not only arise in special cases. Thanks to multiple realizability and the ever-changing fluctuation of the micro-physical goings-on, this type of 'top-down hindrance' is utterly pervasive. This is because the persistence of higher-level goings-on requires that they constantly 'abandon' their precise, present lower-level physical realizers for new and different realizers as the causal processes involving them unfold. In short, any stable macro-level phenomenon always hinders whatever its micro-level basis is at a time.

So (P2) is plausibly false. And there is nothing metaphysically strange about communicative know-how grounding linguistic phenomena that hinder it (e.g., ambiguity). If there is a problem in this vicinity, I suspect it is epistemological. Perhaps the presence of ambiguity (or of polysemy, etc.) in a speaker's language is not evidence for – and is evidence against – the fact that they know how to engage in communication with it. And perhaps many aspects of ambiguity are not best theorized about scientifically in terms of communicative know-how; perhaps knowledge or understanding of ambiguity is not afforded by knowledge or understanding of speakers' communicative know-how.[27]

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[26]Similar cases are discussed in the grounding literature, in which X partially grounds Y but Y is surprising in light of X or X hinders Y – but in these cases, the surprisingness runs in the opposite direction. For example, in Schaffer's (2012) case of the dented sphere, a near-sphere with a dent has its exact shape partly because it is dented. And it is spherical partly because it has its exact shape. By the transitivity of partial grounding, it is spherical partly because it is dented, even though dents hinder sphericality. To avoid this, Schaffer rejects transitivity. But this move is unavailable as a defense of (P2) or as a reply to my cases, for two reasons. First, they do not appeal to transitivity. Second, transitivity is invoked in the argument for (P1); if transitivity fails, then I can reject (P1) to evade the objection.)

[27]Compare: in the dented sphere case, dentedness is not evidence of sphericality, and sphericality is not best theorized about in terms of dentedness. But this is all irrelevant to whether the dented sphere's sphericality depends on its dentedness.

Are these epistemological concerns pressing for the adherent of COMMUNICATIONISM? I do not think so. For the very same concerns arise for the adherent of the psychobiological view. At the present stage of inquiry, it is a matter of speculation whether scientific knowledge and understanding of the character of our language is to be gained by investigation into the biological properties of the human brain. And if it turns out that ambiguity, say, is not illuminated by the brain sciences, this is not of immediate concern for the view that language is grounded in the brain.

2.5. NON-SOCIAL, NON-CONVENTIONAL COMMUNICATION

We should be careful to distinguish COMMUNICATIONISM from the thesis we might call 'SOCIALISM': the view that to have a language is to engage in a social convention to communicate with L. Both articulate the received view. But COMMUNICATIONISM is more plausible.

SOCIALISM is most rigorously defended by Lewis, who argues that a population P has a language L just in case in P there is a convention to be 'truthful and trusting' in L that is sustained by P's shared interest in communicating thereby, where to be truthful and trusting in L just is to 'try never to utter any sentences of L that are not true in L', and to 'tend to respond to another's utterance of any sentence of L by coming to believe that the uttered sentence is true', or, that the proposition the uttered sentence expresses in L is true (Lewis, 1975, p. 167). Crucially, for Lewis, conventional truthfulness and trust in L is supposed to serve as something like an analysis of the social mechanism by which communication is possible; speakers communicate with L *by* conventional truthfulness and trust in L.[28] So Lewis analyzes language in terms of communication while simultaneously analyzing communication in terms of convention.

But the trouble with this is that communication and language need not be social or conventional. Knowledge of how to systematically mean things by speaking, or of how to systematically interpret others as meaning things by what they say, can be had by the asocial who partake in no conventions. Consider the 'pure Robinson Crusoe case' discussed by Davidson, 'a Robinson Crusoe who has never been in communication with others' living an asocial life of isolation (1992, p. 115). Such a Crusoe could know how to systematically speak and mean things to himself and so could have a language.

Sharing Lewis's deep commitment to the view that language is essentially social (Davidson, 1984). Davidson boldly takes the view that the pure Crusoe case is metaphysically impossible (1992, p. 115).[29] But this cannot

[28]This is made clear in chapters 4 and 5 of Lewis (1969); for later restatements, see Lewis (1980, p. 80; 1986, p. 40; 1997, p. 350).
[29]Here, Davidson is responding to a discussion in Chomsky (1986, pp. 230–234, 240–241) in which the possibility of such a case is pressed against the Wittgensteinian social theory of rule-following

be the right verdict. A pure Crusoe case is at best a present technological impossibility. Future technologies might enable experiments in which human subjects, secretly monitored from afar by experimenters with whom they do not socially relate, live and die in pure Crusoe cases. They might be 'raised' by mindless machines, and acquire language interacting with them. Engineering effort toward this end would not be thwarted by the essence of language.

Lewis considers a Crusoe-style objection to his conventional account of language:

Objection: A man isolated all his life from others might begin – through genius or a miracle – to use language, say to keep a diary. […] In this case, at least, there would be no convention involved. (1975, pp. 181–182)

His reply is worth considering in full:

Reply: Taking the definition literally, there would be no convention. But there would be something very similar. The isolated man conforms to a certain regularity at many different times. He knows at each of these times that he has conformed to that regularity in the past, and he has an interest in uniformity over time, so he continues to conform to that regularity instead of to any of various alternative regularities that would have done about as well if he had started out using them. He knows at all times that this is so, knows that he knows at all times that this is so, and so on. We might think of the situation as one in which a convention prevails in the population of different time-slices of the same man. (1975, pp. 182)

Here, Lewis relies on his account of conventions as collective, reasonable, arbitrary, commonly known, regularities.[30] He argues that Crusoe's time-slices collectively partake in such a regularity of communicating with a language, and thereby collectively do so by convention. So, Lewis concludes, the pure Crusoe case involves convention after all.

Set aside that it is dubious that all collective, reasonable, arbitrary, commonly known, regularities are conventions.[31] Even granting this, Lewis's reply is unconvincing. Our judgment that Crusoe might have a language is not sensitive to whether his timeslices partake in a collective, reasonable, arbitrary, commonly known regularity of communicating with a language. Does Crusoe's having a language require that he knows that he has conformed to certain regularities of language use in the past? Plausibly not; Crusoe might be an amnesiac with severe memory disorders. Does Crusoe's having a language require that he has an 'interest' in uniform language use over time? Plausibly not; Crusoe's primary interest might be *survival*, and his island might be inhabited by predators with an appetite for those who speak

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advanced in part 3 of Kripke (1982, pp. 55–113; see p. 110, and fn. 84 in particular, for Kripke's discussion of Crusoe cases).

[30]See Lewis (1969, pp. 52–82).

[31]See Gilbert (1989, pp. 315–407) and Rescorla (2015, sec. 4).

uniformly. Does Crusoe's having a language require that his language use exhibits conformity across time? Plausibly not; Crusoe might be a linguistic innovator, rapidly evolving through multiple dialects a day. For these reasons, Lewis's reply fails.[32]

And there are other counterexamples to language's conventionality. Consider that a creature knit together in a laboratory could be hard-wired to know how to engage in communication, and thereby have a language, entirely free of convention. Lewis anticipates this problem, the possibility of 'creatures of instinct who are unable to use any language other than the one that is built into them' (1969, p. 195). He replies that such cases are so 'bizarre' and 'peculiar', so 'different from language use as we know it', that we 'will not want to classify them as *clear* cases under ordinary usage' of the word 'language'. Still, it is clear that such creatures could have language, which is compatible with its being unclear that uttering 'Such creatures could have language' counts as ordinary usage of 'language'. In fact, *we* might become like such creatures in the future. Our descendants might lose the capacity to acquire languages other than English due to genetic engineering, linguistic imperialism, or cyberization. But such a loss would not be the death of language.

2.6.   ASSISTED COMMUNICATION

To wrap up my defense of COMMUNICATIONISM, I want to look at cases in which we might say that someone knows how to engage in *assisted* communication with a language even though they do not have or know it. For instance, through the use of a human or digital translator, a monolingual English-speaker might be said to engage in communication in French even though they do not know French. Is this a counterexample to COMMUNICATIONISM?

I do not think so. First, we should not endorse the general principle that knowing how to use a tool or aid to Φ entails knowing how to Φ. Someone might not know how to fly, but nevertheless know how to fly with a jet-pack. A toddler might not know how to operate a computer, but nevertheless know how to operate it with adult assistance. But, then again, we do sometimes talk as if knowing how to Φ with an aid suffices for knowing how to Φ simpliciter.

What is going on here? Perhaps 'knows how' is context-sensitive, and in some but not all contexts assisted know-how counts as know-how. Alternatively, perhaps the objects of know-how need to be distinguished more finely and carefully than we care to when talking about them; perhaps knowing

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[32]Additionally, the pure Crusoe case has been put forward as a counterexample to the claim that, necessarily, for any *x*, *x* has a language only if *x* partakes in some convention. Does Lewis's reply dispute that *this* generalization has been counterexemplified? It seems not. He does not deny that Crusoe himself partakes in no conventions. Even if Crusoe's time-slices do, that is neither here nor there.

how *to fly* is never entailed by knowing how *to fly with a jet-pack* (even though flying with a jet-pack does entail flying), but we speak elliptically of the latter as 'knowing how to fly'.

In any case, COMMUNICATIONISM should be read such that the know-how appealed to is of some relevantly unaided variety. It would be no easy task to specify what 'relevantly unaided' has to mean here (e.g., know-how aided by glasses or hearing-aids must be allowed to count as relevantly unaided). But note that the same challenge arises for the psychobiological view that to have a language is to tacitly know a grammar for it. What a human tacitly knows is one thing. What a human tacitly knows with the aid of their extended mind is something else (Clark and Chalmers 1998). Because of this, the possibility of a speaker who does not know German with extended tacit knowledge of a grammar for German based in files on their laptop encoding that grammar is not a counterexample to the psychobiological view properly understood. And so the notion of 'tacit knowledge' to which it appeals must be of some relevantly unaided variety. Here as well it would be no easy task to specify what 'relevantly unaided' has to mean (e.g., it cannot mean *realized by unaided brain processes*, for tacit knowledge chemically aided by neurodegeneration inhibitors or nootropics should presumably count as relevantly unaided). But procrastination on this is acceptable, as is on unpacking 'relevantly unaided know-how'.

3. *The psychobiology of language*

So far, I have argued that COMMUNICATIONISM is a viable view of what it is to have a language. It is a more plausible version of the received view than Lewisian SOCIALISM is, and it is immune to many objections one might raise against it.

Next, I will argue that COMMUNICATIONISM is all the more viable because it is compatible with – and ultimately complements – the psychobiological account of language.

3.1. COGNITIVISM AND NEUROBIOLOGICALISM

COGNITIVISM is the view we have languages by tacitly knowing their grammars. What is a grammar? George (1989) helpfully distinguishes *grammars* and *psychogrammars*. A grammar for a language is an abstract object. For our purposes, think of it as a finite set of axioms and rules with theorems that assign semantic, syntactic, and phonological properties to expressions of that language.[33] A psychogrammar is a state of tacit knowledge of a grammar. (What it is to tacitly know a grammar will be addressed in Section 3.2).

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[33]For more detail, see Partee *et al.* (1993, pp. 431–452).

And we should also distinguish psychogrammars from *physiogrammars*, the neurophysiological states that underlie them (George, 1989, pp. 91–94).

We can then say that COGNITIVISM is the view that someone has a language L just if they have a psychogrammar for L.[34] But some clarifications are in order. To allay worries about aliens, robots, and cyborgs who might have languages without psychogrammars, COGNITIVISM should be read as a thesis restricted to cases of humans having complex natural languages like English. This is clear if we examine the most celebrated argument for COGNITIVISM,[35] the argument from productivity and understandability.[36] Roughly, it involves the following three premises: suppose someone h has a language L.

(P1) Then they have 'infinite competence': there are infinitely many sentences of L they can understand, parse, and pronounce (at least ideally or in principle).

(P2) If (P1), then something finite in them can 'generate' infinitely many understandings, parsings, and pronouncings of L-sentences (i.e., something in them must encode finite information from which they can 'deduce' infinitely many L-sentences' semantic, syntactic, and phonological forms).

(P3) If something finite in them can 'generate' infinitely many understandings, parsings, and pronouncings of L-sentences, then they must tacitly know a grammar for L.

(P1) need not be true on the supposition that h has L, unless 'L' ranges only over infinitary natural languages like English, for having a finite language does not require infinite competence. And arguably (P2) is false unless 'h' only ranges over humans, for a possible non-human creature might have infinite linguistic competence thanks to their infinite memory bank. And as for (P3), it is at best unclear whether having a psychogrammar is the only

[34]This is the view defended in Chomsky (1980): for someone's language to be L is for them to have 'a grammar determining L in [their] mind/brain' (p. 84). By 'a grammar' being 'in [their] mind/brain', he means that they tacitly know a grammar for L (pp. 69–70). See also Chomsky (1986, pp. 15–46). The label 'Cognitivism' is from Johnson and Lepore (2004), who call it 'the received view in linguistics' (p. 709), and survey its mixed philosophical reception (pp. 708–714). More recent defenders include Ludlow (2011, pp. 44–63) and Yalcin (2014, pp. 36–39). Implicit endorsement of COGNITIVISM is found wherever it is argued that linguistic meaning is grounded in tacit knowledge of grammar, that is, wherever it is argued that 'the actual language relation' (Schiffer, 1993) is the 'tacitly knows a grammar for' relation. Something like this view is entertained (or put forward for serious consideration) by Loar (1976, pp. 160–161; 1981, pp. 257–260); Larson and Segal (1995, pp. 22–24, 126); Schiffer (1987, pp. 253–255; 1993, pp. 242–244; 2006, p. 286; 2015); and Laurence (1996, p. 284).

[35]Or rather, for half of it. (P1)–(P3) alone fall short of an argument for COGNITIVISM; they only entail that having a psychogrammar for L is *necessary* for having L. To close the gap, one must assume that having a psychogrammar for L is sufficient for having L. But it is unclear why we should assume this.

[36]See Chomsky (2016, pp. 14–16) for a quick recent statement. In philosophical contexts, these arguments are usually given as arguments for compositionality; see Pagin and Westrstahl (2011, pp. 107–10) and Szábo (2017, sec. 3).

possible way for a finite being to have the cognitive capacity to understand, parse, and pronounce any of an infinity of sentences.[37] But it is widely thought to be a scientific discovery that that is the only way humans can do it. So, (P3) should be restricted to humans, for it is best motivated by the empirical hypothesis that, as a matter of nomological necessity, humans can only possess infinite competence thanks to psychogrammars. Indeed, many of COGNITIVISM's defenders intend to be read as making a claim about *human language*, not language in general.[38]

A precise statement of COGNITIVISM, then, would be

> COGNITIVISM: It is nomologically necessary that, for any human *h* and natural language *L*, *h* has *L* just if *h* has a psychogrammar for *L*.[39]

Suppose that COGNITIVISM is true. It seems *prima facie* compatible with COMMUNICATIONISM. So what argument is there for their incompatibility?

Because COMMUNICATIONISM is the conjunction of two conditionals, if it is incompatible with COGNITIVISM, then COGNITIVISM must entail that one of these conditionals is false. In other words, to argue for their incompatibility, one must find a path from COGNITIVISM to (A) or (B):

(A) Possibly, someone knows how to engage in communication with a language they do not have.

(B) Possibly, someone has a language with which they do not know how to engage in communication.

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[37]Schiffer (1987, pp. 179–210) argues that having a psychogrammar with a compositional semantic component is not necessary for semantic competence (see Balcarras, 2023, for a recent defense). As Matthews (2003) points out (p. 199), Schiffer's argument can be re-run to show that having a psychogrammar with a syntactic component is not necessary for syntactic competence (while taking this to be a bug rather than a feature). And I suspect it can also be re-run to argue that our phonological competence does not require having a psychogrammar with a phonological component.

[38]As Chomsky clarifies: 'By "language" I mean "human language" ' (1994, p. 155). See also Chomsky (2000a, p. 19) and Fodor 1981 (pp. 206–207, fn. 2). This restriction potentially deflects certain objections to COGNITIVISM based on the multiple realizability of language in non-human psychogrammar-lackers, such as those made by Lewis (1975, p. 22); Dummett (1976, p. 37); Katz (1981, pp. 89–90); Soames (1984, p. 171); Devitt and Sterelny (1989, p. 514); and Hanna (2006, p. 50). Replies to these objections (and related ones) amounting to apparent *denials* that language is multiply realizable in such creatures are made by Chomsky (1980, p. 111; 1994, pp. 163–64; 2000b, p. 147); D'Agostino (1986, pp. 34–36); Laurence (2003, pp. 91–100); and Collins (2008, pp. 143–148; 2009b, pp. 182–192; 2018, pp. 175–178). These rebuffs make sense if they take 'language' in the mouth of the cognitivist as picking out *human language*.

[39]Compare the similar statement of COGNITIVISM in Fodor (1981): 'It is nomologically necessary that the grammar of a language is internally represented by speakers/hearers of that language; up to dialectical variants, the grammar of a language is what its speakers/hearers have in common by virtue of which they are speakers/hearers of the *same* language' (p. 199). Fodor attributes this view to Chomsky and Katz (1974) and Fodor, Fodor, and Garrett (1975); it is objected to in Devitt and Sterelny (1989) and Devitt (2006) under the name 'the Representational Thesis' (p. 4).

Arguably, there is no path from COGNITIVISM to (A). If COGNITIVISM is true, it is not plausible that a human could know how to engage in communication with a natural language L, in all of its infinite complexity, without a psychogrammar for L. Someone without a psychogrammar L for might learn how to engage in communication with some finite fragment of L, but a psychogrammar for L seems required for a human to possess the infinite competence manifested in communicating with L (or at least the cognitivist should think so).[40] And if a human needs a psychogrammar for L to know how to engage in communication with L, they must also have L (as per COGNITIVISM). In short, a human case that establishes (A) is unlikely given COGNITIVISM.

Does COGNITIVISM entail (B)? Well, suppose, as many who endorse COGNITIVISM do, that NEUROBIOLOGICALISM is also true, the view that psychogrammars are realized by brain states:

> NEUROBIOLOGICALISM: It is nomologically necessary that, for any human h, if h has a psychogrammar, then there is some neurophysiological property N such that (i) h has N and (ii) h's having N realizes h's psychogrammar.

This is Chomsky's (1986) view. He says that for a human to tacitly know a grammar is for their 'mind/brain to be in a certain state; more narrowly, for the language faculty, one module of this system, to be in a certain state', and that it is the 'task of the brain sciences' to 'discover the mechanisms that are the physical realization of [this] state', or 'what it is about [their] brain by virtue of which' they tacitly know a grammar (p. 22).[41]

This implies much more than the no doubt plausible view that the brain is somehow constitutively or causally related to language-having such that future brain science is bound to be somehow relevant to linguistics. Rather, his view is that psychogrammars are always realized by physiogrammars.[42]

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[40]Assuming, that is, that we should accept COGNITIVISM because psychogrammars are required for infinite competence.

[41]Here, Chomsky writes about 'knowledge of language' being realized by the brain, but in a context in which he has already made clear that to know a language just is to tacitly know its grammar (1986, pp. 3–4).

[42]Chomsky analyzes *what it is* for a speaker h to have a language L as h's standing in relation R to L: h has L just if $R(h, L)$ (R is 'the actual language relation'; see Schiffer, 1993), and then claims (emphasis mine): 'one task of the brain sciences will be to explain what it is about h's *brain* (in particular, its language faculty) that corresponds to h's knowing L, that is, *by virtue of which* $R(h, L)$ holds and the statement that $R(h, L)$ is true' (1986, p. 22). Chomsky also says '$R(h, L)$' is '*about structures of the brain* formulated at a certain level of abstraction from mechanisms' (p. 23). See also Ludlow (2011, pp. 46–47), McGilvray (1998, pp. 240–246), and Chomsky (2003a).

Now, if we take NEUROBIOLOGICALISM on board, we can argue for (B), or for the possibility of someone having a language that they do not know how to engage in communication with: given COGNITIVISM and NEUROBIOLOGICALISM, there are neurophysiological properties the having of which by a human nomologically entail having a language, but which might be had in the absence of knowledge of how to engage in communication with that language. For instance, take the neurophysiological property I have that realizes my psychogrammar, N_1. I could keep having N_1 while losing my communicative know-how. One could hold fixed the N_1-instantiating regions of my brain, but disable the regions required for inner and outer production or comprehension.[43] Afterward, I would still have N_1 and thus a psychogrammar for my language – assuming that realizers nomologically suffice for what they realize – and so must have my language. And so (B) looks true, assuming the following about the realization relation appealed to in NEUROBIOLOGICALISM:

> REALIZERS SUFFICE: If X realizes Y, then X is nomologically sufficient for Y.

If this is true, then, given COGNITIVISM and NEUROBIOLOGICALISM, one can have a language without knowing how to engage in communication with it.

So it looks like the conjunction of COGNITIVISM and NEUROBIOLOGICALISM is inconsistent with COMMUNICATIONISM because they entail (B).[44] If their conjunction makes up part of the psychobiological conception of language, then I must argue against this apparent inconsistency. I will do so next by arguing against REALIZERS SUFFICE. There is a plausible account of how physiogrammars realize psychogrammars that vindicates NEUROBIOLO-GICALISM while abandoning REALIZERS SUFFICE.

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[43]If this is not nomologically possible, then the neurophysiological realizers of psychogrammars for L nomologically suffice for knowing how to engage in communication with L, and so (B) is false given COGNITIVISM and NEUROBIOLOGICALISM. If so, COGNITIVISM and COMMUNICATIONISM are plausibly compatible.

[44]Might COGNITIVISM together with NEUROBIOLOGICALISM entail (A)? They entail that *having a brain* is nomologically necessary for a human to have any L. If it could be argued that it is nomologically possible for humans to know how to engage in communication with some *L without a brain*, then we could argue our way to (A). I think this could be well-argued; perhaps, we will one day know how to engage in communication with English brainlessly with cyber-brains. But I take it that this suggests that NEUROBIOLOGICALISM has been formulated too strongly; it requires a restriction not just to humans, but to *normal* humans. I pass over the hard question of whether this normalcy condition can be spelled out without trivializing NEUROBIOLOGICALISM, that is, without building it into normalcy that one's psychogrammar is realized by one's brain.

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3.2.   HOW PSYCHOGRAMMARS ARE REALIZED

3.2.1.   *Functional realization*

Ascriptions of psychogrammars are best understood as being made at the so-called 'computational level of description'.[45] The claim that we have psychogrammars is like David Marr's claim that our visual systems compute a certain mathematical function in detecting edges. Having a psychogrammar is thus a computational property. A computational property can be thought of as a special kind of functional property, where F is a functional property just if there is some functional role R such that F just is the property of having some property that plays R.

A *functional role R* is any (second-order) property such that a property H's having or playing R entails that H is causally related to certain other properties; functional roles are *causal roles*. A computational property, then, is a functional property with a special kind of defining causal role: a *computational role*, R_c, a second-order property such that a property H's having R_c entails that H is causally related to properties the having of which by a system consist in that system's tokening syntactic objects, structured strings inner tokenings of which are thought to enable machines or brains to carry out computations.

All of this is just to recommend the following picture of how neurophysiological states realize psychogrammar:

> PSYCHOGRAMMAR COMPUTATIONAL FUNCTIONALISM (PCF): There is some computational role R_c such that: having a psychogrammar = the property of have some property that plays R_c.

Call this computational role 'the psychogrammar-role'.

What *is* the psychogrammar-role? We do not know. But we can hold out that it is implicitly specified by the true psycholinguistic theory.[46] For this theory will specify exactly how psychogrammars are causally related to other mental and behavioral occurrences.[47]

Now, if PCF and NEUROBIOLOGICALISM are true, we can say that when a human has a psychogrammar, this is because they have a neurophysiological property N playing the psychogrammar-role, and that their physiogrammar

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[45]See Marr (1982, pp. 28–29, 357); Egan (2003); Rey (2003, pp. 120–123); Devitt (2006, pp. 66–71); and Berwick and Chomsky (2016, pp. 128–33).

[46]How? Roughly, as Lewis (1970) argues, folk psychology implicitly specifies the functional roles of folk psychological states.

[47]I am thus recommending an *a posteriori* psychofunctionalist account of psychogrammars. This is the view Lycan (2003) pushes on Chomsky (p. 24, fn. 4), but which he curiously rejects in Chomsky (2003b).

will be the state they are in of having N. This is how psychogrammars are realized.[48]

3.2.2. Realizers do not suffice

If humans' psychogrammars are realized by states of their brains playing the psychogrammar-role, then REALIZERS SUFFICE is true of this realization relation – X realizes Y only if X is nomologically sufficient for Y – *only if* the following is true:

(1) If a neurophysiological property N plays the psychogrammar-role, then it is nomologically necessary that, if N is instantiated, then N plays the psychogrammar-role.

For if N plays the psychogrammar-role but it is nomologically possible that it does not, then surely it is nomologically possible for a human to have N while having no property that plays the psychogrammar-role, and so (given PCF) while lacking a psychogrammar; and if that is nomologically possible, then REALIZERS SUFFICE is false.

But (1) is plausibly false. Arguably, *no* neurophysiological properties that play the psychogrammar-role do so with nomological necessity. First I want to show that this true on Chomsky's view of psychogrammars, which I will take to reflect the orthodox psychobiological conception. For Chomsky, the neurophysiological states that realize psychogrammars – that is, physiogrammars, or what he calls 'I-languages'[49] – play the psychogrammar-role by virtue of their 'integration' with independent 'performance systems' (emphasis mine):

The I-language is a (narrowly described) property of the brain, a relatively stable element of transitory states of the language faculty. [...] *It is only by virtue of its integration into such performance systems that this brain state qualifies as a language* [...] [i.e.] performance systems that play a role in articulation, interpretation, expression of beliefs and desires, referring, telling stories, and so on. (Chomsky, 2000b, p. 27)

By 'qualifies as a language', I read 'qualifies as a realizer of a psychogrammar for a language'. This implies that physiogrammars realizing psychogrammars do not play the psychogrammar-role with nomological necessity. This is made clear by Chomsky's additional claim that an 'organism

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[48]In Shoemaker's (1981) terms, roughly, a psychogrammar's 'core realizer' will be some neurophysiological state, a physiogrammar, whereas its 'total realizer' will be that state together with the fact that it plays the psychogrammar-role.

[49]Here, I follow Collins (2008), who says that 'I-language' refers to 'an aspect of the mind/brain that subserves linguistic competence' (p. 152), or 'a state of the mind/brain, albeit abstractly described' (p. 220).

might, in principle, have the same I-language (brain state) as' someone in whom it underpins their language, 'but embedded in performance systems that use it for locomotion' (p. 27).[50]

So human physiogrammars might not play the psychogrammar-role; it is nomologically possible for a physiogrammar underlying a psychogrammar to be possessed while not integrated with the right performance systems, in which case it would not play the psychogrammar-role. If this is correct, or at least correct according to the psychobiological view of language, then (1) is false on that view, and so REALIZERS SUFFICE is likewise false of the psychogrammar realization relation.

But why think Chomsky *is* correct on this point? Why think physiogrammars must be 'integrated' to play the psychogrammar-role? Recall the main argument for COGNITIVISM and for belief in psychogrammars: that they undergird our infinite competence with natural languages, enabling us to 'generate' infinitely many understandings, parsings, and pronouncings. If doing that is part of the job description or theoretical role of a psychogrammar, then it is part of the psychogrammar-role and is something that an integrated physiogrammar must do. In order for a physiogrammar to do that – to undergird our infinite competence – it must be causally networked with the performance systems for understanding ('interpretation'), pronouncing ('articulation'), and so on. If playing the psychogrammar-role did not require a physiogrammar to be integrated in this way, then a psychogrammar would be insufficient for infinite competence, and we would lose our main reason to believe in them. So, if one disagrees with Chomsky about physiogrammar integration, then one risks undermining support for the psychobiological conception itself.

3.2.3. Are integrated physiogrammars neurophysiological?

One might worry that even if REALIZERS SUFFICE is false of the psychogrammar realization relation, COMMUNICATIONISM is still threatened. The threat is that possession of an integrated physiogrammar might simply be a matter of having some more complicated neurophysiological property which is nomologically sufficient for having a psychogrammar. If so, then one might hold fixed the right brain regions of someone with an integrated physiogrammar to preserve it while removing their communicative know-how, and COMMUNICATIONISM would be refuted as before.

More precisely, the threat is of the following two claims being true:

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[50]For discussion of this, see Burton-Roberts and Carr (1999, pp. 386–389); Egan (2003, pp. 90–92); Colins (2004, pp. 507–513).

(2) There is a neurophysiological property N such that having N is nomologically sufficient for having an integrated physiogrammar (i.e., a physiogrammar that plays the psychogrammar-role).

(3) If (2) is true, then it is nomologically possible to have a psychogrammar for a language L while not knowing how to engage in communication with L.

If (2)–(3) are true, then COMMUNICATIONISM is false. And if they are true on the psychobiological view, then COMMUNICATIONISM is inconsistent with it. I will not dispute (3). So I will argue that (2) is implausible and not forced on us by the psychobiological view.

On that view, removing someone's communicative know-how plausibly nomologically suffices for disintegrating their physiogrammar, and so (2) is plausibly false. The reason is that physiogrammars realize psychogrammars only when and because they are integrated with performance systems *for communication*. For the human systems for articulation, interpretation, expression, referring, and so on are what enable us to systematically mean things and interpret others as doing so. Hauser *et al.* (2002) concur. What I call a 'physiogrammar' or 'I-language', they call the 'faculty of language' in the 'narrow sense', the FLN; what I call an 'integrated physiogrammar', they call the faculty of language in the 'broad sense', the FLB (pp. 1570–1571). The FLB consists of the FLN together with 'functional components that underlie communication'; it thus 'serves the function of communication with admirable effectiveness' (p. 1572); it *is* 'a communication system' (p. 1574).

So: *physiogrammars realize psychogrammars only when and because they are integrated in such a way that their hosts know how to engage in communication with their language.*[51] Having an integrated physiogrammar requires having performance systems which constitute the human capacity for communication.[52] What this means is that if a neurophysiological property does not nomologically suffice for knowing how to engage in communication with L, then it cannot suffice for having an integrated physiogrammar for L. So (2) is false on the psychobiological view of language, or is anyway not an essential component of it.

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[51]This explains *why* possessing a psychogrammar for L suffices for having L; it suffices for knowing how to engage in communication with L, which, given COMMUNICATIONISM, is equivalent to having L. As I noted in fn. 35 above, it is unclear how else the cognitivist could explain this aspect of their view.

[52]This is confirmed by Chomsky (2002b), who claims that possession of 'the language faculty' – an integrated I-language – is sufficient for 'thinking as we do in inner speech' (p. 148), which I argue suffices for knowing how to engage in communication. The following passage from Chomsky (1997) is also suggestive (emphases mine): 'A person whose mind incorporates the language English (meaning, a particular I-language that falls within what is informally called 'English') *knows how to speak and understand a variety of sentences*, knows that certain sounds have certain meanings, and so on. These are typical cases of knowing-how and knowing-that […] It seems entirely reasonable then to think of the language as a system that is internalized in the mind/brain, yielding specific cases of propositional knowledge and *knowledge how to do so and so*' (p. 12).

Moreover, for those not wedded to a staunchly internalist implementation of that view, there are good reasons to think (2) is false period. There is an argument from a weak form of externalism about linguistic meaning that nothing neurophysiological ever nomologically suffices for having an integrated physiogrammar.[53] Suppose a human h has L, and so has a psychogrammar and an integrated physiogrammar for L. Let N be the neurophysiological property specifying h's total brain state. If having N is nomologically sufficient for having an integrated physiogrammar, then it suffices for having L, and so suffices for linguistic expressions having meanings for h (assuming that one's having a language entails that *some* linguistic expressions are meaningful for one). Now, our weak thesis of semantic externalism states that if expressions have meanings for h, then h must stand in *some* causal-historical relations to their external environment. But note that having N does not nomologically require standing in any such relations; N could be surgically bestowed upon a human who has spent their entire life laying in bed unconscious in causal isolation from the outside world, or by an envatted brain. Thus, having N does not nomologically suffice for possessing an integrated physiogrammar. And the same goes for any neurophysiological property. Therefore, (2) is false.

There is thus no worry that an integrated physiogrammar might be preserved while knowledge of how to engage in communication is eliminated. For these reasons, I take it that COGNITIVISM and NEUROBIOLOGICALISM can be plausibly and faithfully implemented without REALIZERS SUFFICE, and so without having to reject COMMUNICATIONISM.

4. Final thoughts

In closing, I want to lean on the above considerations to address a worry expressed by several readers who have made it this far. It can be voiced

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[53]To unswayed internalist advocates of (2), two points: First, the externalist thesis I employ is compatible with much of what Chomsky (1995) takes issue with in objecting to semantic externalists: mainly, that meanings are externalia. As Collins (2009a) argues, semantic externalism is often contentious for Chomskyans as a claim about methodology, that is, as the claim that semantic inquiry 'targets', 'presupposes', or is 'about' externalia (pp. 60, 63, 65). Consistent with the denial of this is my claim that humans (nomologically) must be somehow causally related to the extra-neural (not to referents or meanings) for expressions to have meanings for them. Second, as Burge (2003) in effect points out, there are ways to maintain the thesis as Chomsky (2003a) advocates and calls 'internalism' – that linguistics is about 'internal states' of 'systems of the mind/brain' (p. 261), and so that integrated physiogrammars *are* states of the mind/brain– while denying (2). An integrated physiogrammar can be in (and a state of) a brain b even if a nomologically possible neural duplicate of b, b' (perhaps in Swampman's head), contains no integrated physiogrammar. Compare: a footprint can be a state of some sand s even if a possible arenaceous duplicate s' contains no footprint (Stalnaker, 1989) As a referee rightly points out, the science of language may not be able to distinguish b and b'. But this does not mean that it should treat b and b' as linguistically indiscernible. Compare again: even if sedimentology and ichnology cannot distinguish s from s', they should not thereby treat them as either both containing or both lacking footprints.

as follows: 'Despite all that you have said, the apparent disagreement or rivalry between COMMUNICATIONISM and COGNITIVISM seems merely verbal or otherwise unsubstantial. COGNITIVISM, on the one hand, is ultimately a scientific theory, while COMMUNICATIONISM, on the other, is a bit of conceptual analysis targeting the ordinary folk notion of 'having a language'. The way you defend COMMUNICATIONISM bears this out, as you appeal to our ordinary intuitions and judgments about who should count as 'having a language'. But when COGNITIVISM is correctly read as a scientific theory, its target is the contingent nature of the human faculty of language, a biological phenomenon – perhaps an organ – posited to explain how humans 'have languages' in a purely theoretical sense. These views simply have different subject matters. And so your attempt to reconcile them is ultimately wrong-headed. And your argument that the sum of what they say about 'language-having' is synergistic and consistent must be somehow equivocal.'

I think this is an understandable but mistaken concern. But rather than defending the substantiality of the dispute here,[54] I instead want to argue that even if this diagnosis of verbality is correct – even if different things are meant by 'having a language' by friends of COMMUNICATIONISM and friends of COGNITIVISM – it is not all for naught. To see this, let us replace 'has' in COMMUNICATIONISM with the more folksy 'speaks', and 'has' in COGNITIVISM with the more biologically suggestive 'embodies':

> Communicationism: It is (metaphysically) necessary that someone speaks L just if they know how to engage in communication with L.
> Cognitivism: It is nomologically necessary that, for any human h, h embodies L just if h possesses a psychogrammar for L.

And let us suppose COMMUNICATIONISM and COGNITIVISM are true of language-speaking and language-embodying, respectively.

Now, if, as I have argued, having a psychogrammar for L requires (for its functional realization) knowing how to engage in communication with L, then embodying L is metaphysically sufficient for speaking L. So language-speaking and language-embodying are not disparate. Rather, the latter figures essentially in the functional explanation of how the former is possible. Moreover, because speaking L involves infinite competence

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[54]This would require careful and lengthy examination of various places in the literature in which this dispute has flared up, for which I lack space. But I will note, quickly, that nowhere in Chomsky's critique of Lewis's influential communication-based account of language does Chomsky even hint that he takes their dispute to be unsubstantial (1980, pp. 81–87). Chomsky later classifies Lewisian *languages* as 'E-languages', abstracta 'with no status in an eventual science of language' (1997, p. 9), and urges focus on 'I-languages' (i.e., physiogrammars or psychogrammars) instead. But this does not render verbal their disagreement about (E-)language-having (pp. 9–12); they ultimately disagree about whether, in Chomsky's terms, a speaker's E-language is 'derivative' from their I-language (see also Chomsky, 1986, pp. 19–24).

just as much as embodying L does, productivity-based arguments suggest that a human h (nomologically) must have a psychogrammar for L to speak L (or at least cognitivists should think so). If so, then h's speaking L is nomologically equivalent to h's embodying L.[55] So even if my talk of 'having L' in all of the above is read equivocally as 'speaks or embodies L', it is not as if I thereby mean nothing of theoretical interest. It is presumably noteworthy that language-speaking and language-embodying robustly coincide. And given that the former is a matter of communicative competence, it is simply incorrect to say that language-embodying (i.e., tacit knowledge of grammar) is only peripherally or accidentally related to communication, as many do say.

In any event, I take it as progress to have at least tabled a defense of COMMUNICATIONISM, given how widely it is taken for granted. And it should be clear now that this view cannot be dismissed or ignored on the basis of the scientific credentials of the psychobiological conception of language (whether or not it is spelled out with its own notion of 'having a language'). Indeed, that conception seems to entail that humans have languages *because* the language faculty bestows on them knowledge of how to engage in communication. Still, Chomsky is right that COMMUNICATIONISM is a 'virtual dogma'. And philosophers can be faulted for uncritically assuming it. But some dogmas are true.[56]

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[55]Depending on one's background metaphysics, one might go further and speculate that h's speaking L is metaphysically equivalent to (and so perhaps identical with) h's embodying L. For perhaps the laws of nature are in some sense necessary, and perhaps humans are both necessarily human and necessarily governed by the actual laws of nature thanks to which their communicative competence requires tacit knowledge of grammar.

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