TOLERATING SENSE VARIATION

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Abstract: Frege famously claimed that variations in the sense of a proper name can sometimes be 'tolerated'. In this paper, we offer a novel explanation of this puzzling claim. Frege, we argue, follows Trendelenburg in holding that we think in language—sometimes individually and sometimes together. Variations in sense can be tolerated in just those cases where we are using language to coordinate our actions, but we are not engaged in thinking together about an issue.

1. Introduction: Why is Frege so Insouciant about Sense Variation?

In the first two pages of 'On Sense and Reference,' Frege argues that singular terms like names express a sense and, if the world co-operates, refer to something as well. The reader may thus find herself surprised when she reads in a footnote (Frege [1892: 210 (27), Fn. 2; translation modified]):[2]

> In the case of an actual proper name such as 'Aristotle' opinions as to the
> sense may differ. It might, for instance, be taken to be the following: the pupil

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[1] Forthcoming in the *Australasian Journal of Philosophy*. Names are listed in alphabetical order. This work is completely collaborative aside from original translations, which are Textor's.

[2] Black incorrectly translated 'vollkommen' as 'complete' [*vollständig*]. References to German pagination in brackets.

of Plato and teacher of Alexander the Great. Anybody who does this will attach another sense to the sentence 'Aristotle was born in Stagira' than will a man who takes as the sense of the name: the teacher of Alexander the Great who was born in Stagira. So long as the referent remains the same, such variations of sense may be tolerated, although they are to be avoided in the theoretical structure of a demonstrative science and ought not to occur in a perfect [*vollkommenen*] language.[3]

First we were offered a picture on which each name expresses a sense, and that sense determines a referent. Now that picture appears to be lost, and yet Frege hardly seems fussed: so long there is agreement on reference, variations in sense can be tolerated.

A number of commentators have argued that such tolerance undermines the objectivity and publicity of sense which, Frege held, distinguishes senses from ideas, or unshareable mental states and events (see Frege [1892: 212 (29)]). If you simply have your sense of 'Aristotle' and I have mine, there would seem to be no reason to assume that a proper name like 'Aristotle' expresses a sense at all. For if sense can vary so markedly from speaker to speaker, it becomes less and less clear how we are meant to distinguish between senses and ideas (see Russell [1904: 169]; Kripke [1979: 247]; Heck [1995: 80-1]; Sainsbury [2005: 14]; Kremer [2010: 281-3]). Proper names would thus lack any sort of 'public' sense, which could in turn be used to explain their cognitive value. What's more, if coordinating on a sense is necessary for communication to succeed—as many have supposed—and if we have no way of recognizing that someone else is using a name with a different sense than the one we

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[3] Frege moves rather quickly from disagreement about sense to variation of sense. For discussion see May [2006: 126-7]. See also §5.2.

associate that name with, then skepticism looms about the very possibility of communication (see [Dummett 1981: 102-5]; Evans [1982: 40-1]; Miller [2007: 44]).

Given that sense variation opens the door to serious difficulties for Frege's theory of sense and reference, was he simply wrong to have adopted such an insouciant attitude? Below, we will argue that Frege's tolerance was not, in fact, misplaced. The key to understanding why hinges on seeing that Frege was never primarily interested in the languages we speak, or what we would nowadays call 'natural languages'. Rather, Frege's primary interest was in the fragments of these languages in which, he took it, we think. Below, we'll call these fragments 'thinking languages'. According to Frege, thinking languages are subject to the *Uniqueness Demand*: to each sign in the language, there should correspond a unique sense. Conforming to this demand helps make such languages useful tools for creatures like us; unambiguous thinking languages allow us to avoid errors in our reasoning. Natural languages, in contrast, help us communicate. To the extent that communication involves joint thinking, they too will be subject to the Uniqueness Demand. But a great deal of communication, in Frege's eyes, does not amount to joint thinking.

In order to fully understand Frege's philosophy of language, it helps to put it in historical context. Frege's conception of language does not arise *ex nihilo*; rather, it is part of a tradition dating back to Herder, and to which Frege was introduced by Trendelenburg. Against this backdrop, it becomes clear how, for Frege, language is first and foremost a vehicle of thought. If we think in a language though, then any imperfections of that language carry over straightforwardly to our thought as well. This, we will argue, is what drives Frege to embrace the Uniqueness Demand. But Frege also inherited something else from this tradition: the idea that a great deal of our thinking is communal, thinking together. Ultimately, it is by distinguishing

between genuine joint thinking and more mundane instances of communication that Frege carves out a space where sense variation can be tolerated.

We begin our discussion by outlining the historical background to Frege's view that we think in fragments of natural languages (§§2-3). Then we bring this view to bear on the questions raised by the possibility of sense variation (§§4-6).

2. Freedom of Thought First, a 'Community of Human Powers' Second

Why has language come into being? On one line of thinking, famously defended by John Locke, we are beings who by nature need social interaction ('fellowship') and the purpose of language is to facilitate such interaction.[4] Sharing a language enables us to share knowledge and to coordinate our joint projects.

This, however, is not the answer that drives Frege's work. Rather, Frege comes from a somewhat less prominent tradition in the philosophy of language which connects freedom in thinking with the ability to use language. This tradition starts with Johann Gottfried von Herder's *Treatise on the Origin of Language* (1772), then runs through Alexander von Humboldt's work on language to, most significantly for us, the essays of Friedrich Adolf Trendelenburg.[5] We will focus here on Trendelenburg's 'Über Leibnizens Entwurf einer allgemeinen Charakteristik' (1856), as Frege explicitly references this essay in the introduction to his *Begriffsschrift* [1879: 6 [v]].[6]

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[4] See Locke [1689: 402].

[5] On Herder's philosophy of language see Chomsky [2009: 66-67] and Forster [2018: Ch. 1).

[6] On Frege and Trendelenburg see Sluga [1980: 48ff] and Gabriel [2013: §7.1].

Trendelenburg argued that we need sensible signs to be able to free our thinking from the control of the environment. He [1856: 1-2; author translation] starts by describing how a sign can help to transform mere association into genuine thinking:

> The sign, which speaks in gesture and sound to affect and mood, speaks in word and sentence to the spirit [*Geist*] and has, following the laws of association of ideas, the power to produce particular ideas and to order them in the person who hears or applies it. By fusing with the idea, the sign feeds back into thinking. By means of the sign, the ideas which otherwise bleed into each other are separated and as separate elements are lasting possessions which are now at the disposal of the thinker. […] In this way, thinking is on the one hand determined and on the other hand liberated by the sign of the word. Furthermore, only the sign makes it possible that many have the same thought, the same purpose [...] on which the community of human powers [*Gemeinschaft der menschlichen Kräfte*] on which the life of humans as a life of individuals in one kind, education and civilization, is based.

According to Locke, the purpose of human language is, first and foremost, to enable and sustain a community of human powers. In contrast, for Trendelenburg, the purpose of human language is, first and foremost, to allow beings like us to gain a modicum of control over our thinking. Only when this is achieved do signs enable different individuals to share the 'same thought' and 'the same purpose'.

If 'the community of human powers' consists in many different people sharing thoughts and purposes, those thoughts and purposes cannot be pure psychological

states—at least on the assumption that psychological states are to be identified via their individualistic features. In this passage, Trendelenburg thus anticipates Frege's conception of thoughts as objects whose existence and identity is independent of the identity and existence of thinkers. Frege [1879-91: 7 (6)] explicitly echoes this language of a 'community of intellectual life', and we will examine the use to which he ultimately puts this notion in §5.

Let us now look more closely at the increased control over our thinking that language is supposed to yield. Trendelenburg [1856: 3; author translation] summarized this line of thought with a neat metaphor:

> The audible and visible sign merges with the idea in such a way that it comes if the sign calls. In virtue of the association of ideas, the sign becomes externally a guiding rein for thoughts.

According to Trendelenburg, our minds are governed by the laws of association: internal and external stimuli fully determine which ideas we have now and will have in the future. We are, in our mentation, at the mercy of our surroundings. However, there is a work-around. If there are physical objects (i) that you can (repeatedly) produce at will and (ii) the production of which reliably causes you to have an idea, regardless of whatever external stimuli you might also be experiencing, then you can plausibly control which ideas you have at a given time.

We have such physical objects, Trendelenburg claims: namely, signs. Because their production is under our control and independent of the environment, we can bring our thinking under our control; we can revisit and reactivate ideas if we want to. Effectively, the sign 'fuses' with the idea. In other words, the production of the sound

allows one to cause the idea. So now we can rein in ideas and a necessary condition for genuine thinking, as opposed to mere association, is in place.

Two clarifications are in order. First, Trendelenburg doesn't argue that signs, in some intuitive sense, are the only physical objects which satisfy (i) and (ii); instead, he is happy to call whatever it is that satisfies (i) and (ii) 'signs'. Signs in this sense needn't be words of a natural language like English or some other semiotic system. Rather, signs are just whichever physical objects we can produce at will, independently of our surrounding environment, and which are bound up with our ideas in the appropriate way.

Second, it would be unproductive to think of Trendelenburg as outlining a genetic account of the relationship between signs and thinking. A genetic account would beg the all-important question: how are signs first introduced and how do they acquire their meaning if, antecedently, our mentation consists of only chains of ideas? Read as minimal conditions on thinking, however, and not as any sort of evolutionary account, Trendelenburg's (i) and (ii) look far more plausible.

In summary then, Trendelenburg highlights three important properties of signs that Frege will take up and extend. First, signs allow us to engage in the activity of thinking at will. Second, thinking is partially determined by the signs we use to think. Negatively, we are limited in our capacity to think by the signs that we happen to possess. Positively, thought becomes more articulate in virtue of its being expressed in signs. Third, only via signs can different thinkers come to think the same thought. Unfortunately, Trendelenburg never elaborates on this last point. But we will return to it below, in the context of considering Frege's own mature theory.

3. Frege, Freedom of Thought, and Thinking in Words

Echoing Humboldt [1795: 581] and Trendelenburg, Frege [1882: 48 (156)] claims that 'in order to think, we need sensory signs [*sinnliche Zeichen*]'. Indeed, in this same essay, Frege follows Trendelenburg in offering a step-wise account of how thinking is liberated from physical constraints via the adoption of signs. For Frege, like his predecessors, sensible signs grant us the power to think by bringing forth the ideas to which they are bound. Thereby, sensible signs allow us to impose our will on our thinking and free ourselves from the laws of association which would otherwise dominate our mental lives.

Frege [1882: 156 (49); in part author translation] elucidated the power of signs by means of an intriguing analogy:

Symbols hold the selfsame significance for thinking as did the discovery of using the wind to sail into the wind [*den Wind gebrauchen, um gegen den Wind zu segeln*].

Much as one can learn to sail against the wind by means of cleverly harnessing that very wind (tacking), in thinking we can learn to use physical objects to escape the very constraints the physical world imposes on us.

Could ideas themselves play the role of signs? After all, we seem to be able to recall ideas more or less at will. Frege [1882: 156 (49)] considers and rejects this possibility; ideas are too unstable. They are inevitably 'swallowed into the darkness' when new ideas and perceptions are triggered. In contrast, signs, conceived of as physical objects, exhibit the requisite sort of stability to allow us to engage in an activity which properly deserves to be called 'thinking' (Frege [1897a: 2-3 (222)]).

Having followed his predecessors this far, Frege [1882: 156 (49); emphasis added] now steps beyond Humboldt and Trendelenburg by explicitly stating that 'we think in signs' (see also Dummett [1979: 803]):

[T]heir [the signs's] value is not diminished by the fact that after much practice, we no longer really need to call forth a symbol, we do not need to speak out loud in order to think. *The fact remains that we think in words or, when not in words, then in mathematical or other symbols.*

An experienced chess player can play chess 'in his head'; they are no longer constrained by the availability of a chessboard. Two such players can play against each other by imagining a board and the moves on it. While the board and the movement are imagined, the moves the players make in their heads are genuine. The game will have a winner or end in a draw. Likewise, speaking and writing on paper becomes superfluous when one can simulate speaking and writing and these 'internal activities' will count as acts of thinking.

Frege argues for this 'silent speech' view of thinking well before he has introduced the distinction between sense and reference.[7] But he will hold it until the end of his career, even once the distinction is in place. He called the senses of indicative sentences which are free of context-dependent expressions 'thoughts'. The question of truth and falsity arises first for thoughts; an indicative sentence of a

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[7] Frege [1918: 294 (62)] reserved 'thinking' for a grasping a thought and contrasts it with judging, which is akin to an internalized assertion. So, on this later view, all judging will require thinking but not vice-versa. For ease of explication, we'll employ a wider notion of 'thinking' that isn't intended to mark this contrast.

language is true or false at a time and place in virtue of expressing a thought that is true or false absolutely (see, for example, Frege [1918: 292 (60-1)]).

For our purposes, it is important to clarify that thoughts are non-sensible [*unsinnlich*]; they cannot be perceived by the senses and their parts are not ordered in space and time (see Frege [1918: 298 (61)]). Beings like us require sentences, *sensible* signs with either spatial or temporal parts, in order to think *non-sensible* thoughts.[8] Beings like us can only judge that *p,* or take some other attitude towards that content, by either speaking (or inscribing) a sentence that expresses this thought, or by simulating such speaking (or writing). While other beings might be able to think without a sensible vehicle, we cannot (see Frege [1923: 259 (279)] and [1924-5: 269 (288)]).

According to Frege, the fact that signs are physical gives rise to a dilemma: on the one hand, the sensible (be it visual or auditory) character of signs allows us to exercise greater control over our mental lives. On the other hand, this very sensible character 'provokes' mistakes in thinking. As Frege [1882: 158 (52)] puts it, 'the tight clinging of the *audible* signs to the bodily and mental conditions of reason has perhaps precisely the disadvantage of keeping the former dependent on the later.' If you utter the sentence, your accent, intonation, etc. unavoidably trigger a whole raft of unwanted thoughts and emotions. How then can we hope to guide our mental lives without the flaws in our thinking language leading us into all manner of error?

While the dilemma cannot be fully resolved, it can be ameliorated by the development of a Begriffsschrift. A Begriffsschrift has no phonetics, for instance.

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[8] See Frege [1897b: 142 (154)] and [1918: 292 (61)], where thoughts are taken to become (more) graspable by being put in 'sensible garment'.

Thereby, a whole range of emotional and associative responses—along with whatever errors they are apt to generate—are eliminated.

We have now arrived at Frege's justification for his project of generating a Begriffsschrift. Our primary interest lies in something slightly different, however: the question of how languages short of a Begriffsschrift can be better or worse for thinking. In particular, we are interested in the sorts of errors invited not by phonetics or intonation, but rather by ambiguity. Why are ambiguous languages defective to the extent that they serve as the media for our thinking?

4. The Perils of Thinking in German (or English…) and How to Avoid Them

So far, we've argued that Frege, echoing a long tradition in Germanic philosophy, held that we think in signs. Now we turn to the task of leveraging this observation to help illuminate why Frege endorsed the Uniqueness Demand: the claim that to each expression in a language there ought to belong only one sense.

If language is indispensable for thinking, which language do we think in? Frege [1923: 260 (280)] tells us that he conducts his reasoning in 'written or printed German.' Consider further his [1897b: 142 (154)] remark about the difficulty of distinguishing logic from psychology:

> There is a difficulty here in that we think in some language or other and that grammar which has a significance for language analogous to that which logic has for judgement, is a mixture of the logical and psychological.

Frege then goes on to illustrate, by means of some examples in written German, how grammar mixes the psychological and logical. This strongly suggests that he held that

each of us thinks in a fragment of a natural language.[9] Frege's [1897b: 143 (155)] remark that the logician 'ought [....] to see his task as that of freeing us from the fetters of language' supports this reading further. For Frege's claim, we take it, only makes sense on the assumption that we think in natural languages like English.

From a contemporary perspective, Frege's claim may seem surprising: surely, he doesn't really mean that we think in messy, highly-ambiguous natural languages like English or German! As Fodor [2005: 156] and others have claimed: 'You can say (that is, utter) things that are ambiguous, but you can't *think* things that are ambiguous.'

To illustrate, consider Kripke [1979]'s famous 'Paderewski' case: Ignacy Jan Paderewski (1860-1941) was both a composer and the first prime minister of Poland. So one might associate the name 'Paderewski' with either the sense *the composer of Manru* or *the first prime minister of Poland*. According to Fodor [2008: 73], one can say 'Paderewski is tall,' which is ambiguous between expressing a *composer* thought and a *prime minister* thought, but one cannot think any direct mental equivalent of this sentence. One can think a *composer* thought or a *prime minister* thought, but there is no third, ambiguous option when it comes to the level of thought.

Fodor concludes that we cannot think a natural language that is lexically or syntactically ambiguous. Rather, we think in a language, 'Mentalese', which is

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[9] Garavaso and Vassalo [2015: 90] agree that, according to Frege, we think in *natural language*. However, they take the Uniqueness Demand to apply only to languages for 'pure' thinking. We, in contrast, take it that Frege sees the normative demands of logic as applying to all thinking—not just to pure thinking.

unambiguous in these respects.[10] According to Fodor, Frege could not have thought in German.

Even if Fodor is right and it is impossible to think something ambiguous, *pace* Fodor, we take it to be possible to think in an ambiguous language. The key is to allow for sentences in this language to be disambiguated in context.[11] In other words, suppose that the language in which we think meets what we might call the *Contextual* Uniqueness Demand: to each sign in the language, there should, in a given context, correspond only a single sense. So one will never think something ambiguous; in any context, the sentence corresponding to our thought will be fully disambiguated. The language in which we think, however, remains ambiguous.

We take this to very plausibly be Frege's picture of the languages in which we think. Consider how he [1892: 211 (27-8); author modified translation] introduces what we above called the Uniqueness Demand:

> To every expression belonging to a perfect [*vollkommenen*] totality of signs, there should certainly correspond a definite sense; *but natural languages often do not satisfy this demand [Forderung], and one must be content if the same word always [immer] has the same sense in the same context [Zusammenhang].*[12]

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[10] For discussion of Fodor's argument, see Dupre [2021: sect. 3.2].

[11] This possibility is also defended by Carruthers [1998: 469-70].

[12] Black mistranslated 'vollkommen' as 'complete' (vollständig) and 'Forderung' (demand) as 'condition' (Bedingung).

For Frege, context can be either linguistic—individual expressions are embedded within complexes and, ultimately, sentences—or non-linguistic. A *perfect* language meets the demand for total disambiguation. An imperfect language, like German, does not meet this demand. But we can be 'content' if it meets a weaker criterion: that the same word has *the same sense in the same context*.[13] Satisfying this weaker criterion should suffice to make it the case that the sentences we think in are unambiguous *in the context of our thinking* even if they are ambiguous *when considered as sentence-types in a public language like German or English*.

Will context always serve to disambiguate the sentences in which we think? Consider a potential counterexample inspired by Thomson [1969: 744]: while planning a nice outing, John silently utters the sentence 'I need to go to the bank today'. However, John's grasp of English is incomplete: he doesn't realize that the word-type 'bank' can mean not only *financial institution*, but also *sloping raised land* or *row of similar things*. *Prima facie*, nothing about the context of John's silent utterance looks set to disambiguate this sentence. Nor would John's intentions at the time of the utterance plausibly be sufficient; by stipulation, he takes 'bank' to be unambiguous, so he presumably lacks any intentions to use the term with one meaning as opposed to another. So John will have thought a sentence which was ambiguous in context—and hence, on the view presently under consideration, won't have thought anything at all. Following Thomson, we take this to be an implausible result.

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[13] We will leave discussion of Frege's [1884: ix] 'Context Principle' to the side. As best we can tell, this is a general strategy for determining the *Bedeutung* of a word, and thus bears on ambiguity only indirectly.

Here is where it becomes important to specify we don't take Frege's view to be that we think in English or German *per se*, but rather in fragments of such languages. Any English speaker will have only a partial knowledge of the meanings of some ambiguous words. It is therefore only fair to see John not as asserting a sentence-type of English, but a sentence-type of *the fragment of English* he speaks. This fragment will inevitably be incomplete, but it affords us some helpful resources when it comes to identifying what an agent is thinking. For, rather than having to disambiguate their internal utterances relative to every possibility in the public language, we need only disambiguate their utterances relative to the meanings available in the fragment of that language in which they think. In the case of John, for instance, the fact that 'bank' has other meanings in English no longer impedes our ability to identify what he is thinking. For we know which meaning is available in the fragment he has acquired. We take it that Frege can therefore agree with Fodor that the sentences in which we think must disambiguated without accepting that we think in Mentalese or something like it. Fragments of German or English will do.

Nonetheless, Frege endorses the Uniqueness Demand; he views thinking languages—that is, the fragments of natural language in which we think—as flawed to the extent that they are not fully disambiguated. But if this flaw doesn't involve the violation of a constitutive requirement for counting as a language for thinking, then wherein lies the flaw? We find the following passage from Frege [1882: 156 (50); author modified translation] helpful:

Language […] proves to be deficient in the matter of protecting our thinking from error; it does not even fulfil the first demand made on it in this respect, that of being unequivocal. The most dangerous such traps are those where the

meanings of a word are only a shade apart—the faint [*leise*] but not trivial fluctuations.

Frege is clearly focused here on the role that languages play in shaping our thinking. As he sees it, ambiguity and polysemy pose serious problems for our thinking, since these allow the same type-individuated signs to shift in their senses across contexts. If we are better attuned to shifts in sign-type than shifts in sense without an accompanying shift in type, then this represents a real risk of our falling into error. For, without noticing, we may shift from using a sign with one sense to using that very same sign with a different sense, thereby potentially undermining our justification for later steps in our reasoning. In fact, if sense determines reference, we may be left with an altogether invalid argument. Crucially, thinking in ambiguous languages not only opens us up to mistakes in thinking, but these mistakes are easily overlooked.

By way of illustration, consider a very simple deductive inference of the form:

P. Therefore *P*.

For this inference to be justified, one needs to think the sentence *P* twice-over *with the same sense*.[14] If the sense of *P* subtlety shifts between the first and second

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[14] One might be tempted to say that all we need to do to preserve justification is to preserve *de jure* co-reference. Indeed, we agree. But on the assumption that sense determines reference, preserving *de jure* co-reference entails preserving sense. Alternatively, one might be tempted to try adding a further premise to the effect that 'the first instance of '*P*' and the second instance of '*P*' express the same sense.' But

tokening of it, then the inference will be unjustified and—supposing that sense determines reference—quite possibly invalid. In other words, if we reason in ambiguous languages, then even the most trivial of our inferences are apt to be riddled with errors that can easily go unnoticed.

In later work on the foundations of geometry, Frege [1906: 308; author translation] (see also [Frege 1900: 44 (72)]) stresses much the same point: 'Indeed, if one wants to deceive oneself and others, there is no better means for that than ambiguous signs.' If we want to keep ourselves from falling into such errors in reasoning, then we ought to think in disambiguated languages. Being the sorts of beings we are, unambiguous thinking languages not only help to prevent our falling into error, they also serve to make errors—when we do commit them—more easily recognizable.

We can summarize Frege's line of thinking as follows: if one wants to minimize mistakes in thinking, and in particular in chains of reasoning, then one ought to think in a language whose signs are unambiguous. In such languages, shifts in sense correlate with shifts in sign type, and hence are more easily recognized. As Frege [1906: 385, Fn. 3; author translation] put it: 'Unambiguousness is the highest [*obersten*] command [*Gebot*] that logic must make on a language or script.' The Uniqueness Demand, then, is a demand of logic: to think well, we ought to think in unambiguous languages. So languages themselves are flawed from the point of view of logic when they exhibit ambiguity—the reason being that when we think in such languages, that very ambiguity is apt to lead us, unnoticed, into error.

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this opens the door to a Carroll-style regress, for now one needs to specify that the first and second instance of ''*P*'' refer to the same thing, and so on.

5. Communicating in Language: When Sense Variation is Tolerable and when not

We have argued that Frege's Uniqueness Demand applies in the first instance to the fragments of natural language in which we think. Now, when Frege [1918: 298 (66)] says that the fulfilment of the Uniqueness Demand is often, but not always significant, what sorts of uses of language does he have in mind? In this section we will argue that, for Frege, language is subject to the Uniqueness demand to the extent that it is being used as a vehicle for thinking. Some of that thinking we undertake individually and some we undertake together. When we use spoken or written language to think together, the language we use will be subject to the Uniqueness Demand. In contrast, when we use language merely to coordinate our actions with each other, the language we use will not be subject to the Uniqueness Demand. When it comes to coordinating our actions, agreement in reference will be enough to ensure communicative success.

We will illustrate these two ends of a spectrum of possible communicative aims by appeal to two of Frege's later essays, 'The Thought' (1918) and 'Negation' (1919). Working through an example drawn from each will help us to get Frege's considered picture fully in view.

5.1 When Sense Uniqueness matters: Communication as Part of the 'Common Intellectual Life'

In 'Negation', Frege considers two examples designed to illustrate the importance that shared sense plays in our joint thinking. The first involves researchers who are trying to establish whether bovine tuberculosis is transmissible to men. The second involves members of a jury that needs to come to a verdict (see Frege [1919: 375 (145); 376-7

(146-7); 379-80 (149); 383-4 (153-4)]). We will focus on the latter case, as it is the primary example running through 'Negation'.

Consider a jury tasked with coming to a unanimous verdict on the guilt of an accused person. More specifically, the jurors are asked to consider the question:

(Q) Is the accused, Dr. Gustav Lauben, guilty?

Their goal, after hearing all the evidence, is to arrive *together* at an answer.

Frege has independent arguments that polar questions like the one above express thoughts. According to him, Q expresses the thought that the accused, Dr. Gustav Lauben, is guilty without presenting it as true. If the jury discovers that the right answer to the question is 'Not guilty', the thought expressed is false.

In deliberating, the members of the jury presuppose that the interrogative sentence Q and hence, the proper name 'Dr. Gustav Lauben', has the same sense for each of them.[15] If the members of the jury could not take this for granted, they could not try to decide the same question and, in the end, speak with one voice. To see this, let us assume that one juror, Franz, associates with Q the thought *the man going by the name 'Dr. Gustav Lauben' who was born on the September 13, 1875 in Dresden, is guilty*, whereas another juror, Otto, associates with Q the thought *the man going by the name 'Dr. Gustav Lauben' who lives in the ground floor at Zwetschgengasse 48 in Jena, is guilty*. Even if the accused satisfies both descriptions, Franz and Otto pursue different questions: one a question about the person born on September 13, 1875 in Dresden, the other about the inhabitant of the ground floor at Zwetschgengasse 48.

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[15] Frege's own examples of questions discussed in court contain the proper name 'Rome' and 'Berlin'.

Note that, in these circumstances, if the thought Franz associates with Q is true, then the thought Otto associates with Q will also be true and *vice versa*. Might it not be enough for the jurors come to the same verdict about the truth of the sentence 'Dr. Gustav Lauben is guilty', even if they associate different thoughts with that sentence?

Frege's answer is 'No.' The problem is that, to engage in a genuine project of joint inquiry, the jurors must be able to appreciate the relevant evidence in the same way. Evidence that speaks in favor of the bearer of 'Dr. Gustav Lauben' who was born on September 13, 1875 in Dresden being guilty may not speak in favor the bearer of 'Dr. Gustav Lauben' who lives in the ground floor of Zwetschgengasse 48 in Jena being guilty. For instance, if there is evidence that the perpetrator was from Dresden, the relevance of this evidence for the case at hand will be appreciated by Franz, but not Otto. While such evidence might never come up, the possibility of such divergent responses gives the lie to the claim that Franz and Otto are genuinely thinking together.

Summing up his reasoning on this case, Frege [1919: 376-7 (147); emphasis added] tells us that:

> Trial by jury would assuredly be a silly arrangement if it could not be assumed that each of the jurymen could understand the question at issue *in the same sense*. So the sense of an interrogative sentence, even when the question has to be answered in the negative, is something that can be grasped by several people.

More generally, if different people want to answer a question together, they need to

take for granted that each grasps the same thought. If our engagement in such joint projects is to prove neither illusory nor irrational, it matters that the same sentence expresses the same thought for everyone involved.

The jury is a model for other groups pursuing a question together, like Frege's example of a research group investigating bovine tuberculosis. [16] Such groups constitute what Frege [1879-91: 7 (6)], following Trendelenburg, calls a 'community of intellectual life'. If members of such groups address each other in pursuit of their common inquiry, they can try to come, together, to the right view on an issue. When using language in pursuit of their common inquiry, the members of such a group must take their words to satisfy the Uniqueness Demand. In order to think and reason together well, they ought to think and reason in a fully disambiguated language. It is not just that their thinking and reasoning will be subject to various mistakes if they rely on an ambiguous language—though surely this is true as well—but, crucially, their thinking and reasoning will not be coordinated. To reason together is to reason in a coordinated manner, with a reason for one serving as a reason for another and a valid inference for one serving as a valid inference for another. It is only by homing in on a fully disambiguated fragment of natural language—even if it is one that only persists in certain specialized contents—that we can hope to achieve such coordination.

How does Frege think that we actually manage to achieve such coordination? While we know of nowhere that Frege offers a detailed response to this question, we

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[16] Heck [2002: 16] suggests that the fundamental aim of communication is for people 'engage one another rationally'. We think that this description fits cases of communication that are the joint attempts to answer a question, but that it cannot be generalized. See section 5.2.

do find the above passage suggestive: at least with respect to certain bits of proprietary vocabulary, each member of the community *presupposes* that the others in her community are all using these terms in the same way that she is. In other words, each member of the community *defers* to the community at large to furnish a sense to whatever proprietary terms are central to their collective inquiry. The individual in question may not be in a position to fully grasp the very thought they are thinking. Nonetheless, so long as the community as a whole is capable of furnishing a sense for each of the relevant terms, even these individuals will be able to think the same thoughts as the others—and will thus be able to engage with those other members of this intellectual community in a project of thinking and reasoning together.[17]

5.2 When Sense Uniqueness doesn't matter: Mere Coordination of Action

In 'The Thought', Frege [1918: 297 (65)] turns to a case of communication which contrasts in fundamental ways with his jury example:

> Dr. Gustav Lauben says, "I have been wounded." Leo Peter hears this and remarks some days later, "Dr. Gustav Lauben has been wounded." Does this sentence express the same thought as the one Dr. Lauben uttered himself?

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[17] Granted, some may find Frege's apparent confidence that an intellectual community can provide a sense to at least certain terms as used by its members objectionable given the absence of further explanation. We can only speculate as to what Frege's positive views might have been here; for a more recent account of meaning-giving which puts deference at the core, see Burge [1979].

Frege spins the case out further: Herbert Garner also knows Dr. Lauben, but what he knows about him differs from what Leo Peter does. In other words, like Franz and Otto above, Herbert and Leo connect different co-referring senses with 'Dr. Lauben'. So they will express different thought with their utterances of 'Dr. Gustav Lauben has been wounded'. What should we make of this? Is it possible for Herbert and Leo to manage to communicate with each other?

Frege's [1918: 298 (66)] answer is:

> The different thoughts which thus result from the same sentence correspond in their truth-value, of course; that is to say, if one is true then all are true, and if one is false then all are false. So it must really be demanded that a single way in which whatever is referred to is presented be associated with every proper name. It is often unimportant that this demand should be fulfilled but not always.

We take the idea here to be that the Lauben case is a representative example of when the variation in sense does not matter. If we go back to 'Negation', we can see why: in contrast to Franz and Otto, Herbert and Leo don't share a 'common intellectual life'. There is no question they are jointly investigating, nor are they thinking through a problem together. So there is no threat of failing to attend to a common subject matter if they associate different thoughts with the same sentence.

Frege finesses the Lauben example by saying that everyone involved speaks a different language. In one sense, all presumably speak German; but each speaks a slightly different fragment of German, on Frege's way of thinking. The importance of this for communication should not be overblown, however. For people who speak

closely related languages—German and Dutch, for example—can often achieve at least some basic coordination. Knowledge of their own language, combined with assumptions about similarity and general reasoning skills, will enable a speaker of German to muddle through in Amsterdam. But a joint research project is not on the cards. Similarly, Leo and Herbert can both send the medics to the right person despite their connecting different senses with the name 'Dr. Gustav Lauben'.

6. Comparison to Other Views

Let us take stock. There are some instances of communication which can plausibly be modelled on thinking in language and others which cannot be. The result is an understanding of Frege on linguistic communication that offers a kind of principled flexibility when it comes to understanding the Uniqueness Demand: it will be in effect when the speaker and listener are engaged in, or are at least trying to engage in, a joint inquiry. When they are not, it will not be.[18]

Burge [2005: 47] looks to have a similar picture in mind when he writes:

In an ideal language—a language ideally suited to the expression of thought in a science—the sense of an expression would be shared among all competent users engaged in a common scientific enterprise. The sense would also be constant from one occasion to another. Natural language uses of proper names are not like that, according to Frege.

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[18] Difficult questions remain regarding what is required for a group to be engaged in a joint inquiry, but we can find in Frege no sustained engagement with these questions.

On Burge's understanding of Frege, disambiguated languages are ideal for expressing thoughts in a science. On our own understanding, in contrast, disambiguated languages are ideal for thinking, period. Science represents one important strand of how human thinking can develop. But we needn't have developed anything so sophisticated as science, or even joint thinking, for the fragments of natural language in which we think to be subject to the Uniqueness Demand.

Other theorists have based their understandings of Frege on what we take to be just one half be the overall picture. So, for instance, on Dummett's [1981: 105] understanding of Frege, speakers tend to converge on senses for proper names. Otherwise, Dummett reasons, they would be unable to agree on what counts as justifying a statement that includes such a name.

Unlike Dummett, we don't think that Frege in any way concluded that the languages we speak—natural languages—will approximate a language in which each proper name has exactly one sense. We see in Frege no claim to the effect that there is a drive to general linguistic reform at the end of which every proper name will express exactly one sense. Such a reform might well make joint inquiry go better, but not all proper names figure in joint research projects. And, even in joint inquiry, it often seems to be enough, according to Frege, for us to presuppose that we are all using the term in the same way (see also Evans [1982: 40]).

On the other side of the spectrum, May [2006: 123] musters the Lauben example to support a reading of Frege according to which each of us speaks a *Fregean language*: a language which satisfies the Uniqueness Demand. When you say 'Aristotle was born in Stagira' and I add 'And Aristotle died in Chalcis,' we are under the impression that we are both speaking the same language, English. But we

are wrong about that; in fact, we are each speaking distinct Fregean languages which may happen to agree on the referents they assign to particular terms.

Like Dummett, we take May to overgeneralize: in cases of joint inquiry, we take Frege to have been relatively optimistic that, via deference, it is possible to think together in the same language. The right conclusion, we claim, is to acknowledge that Frege's Uniqueness Demand applies whenever there is a project of joint inquiry; so it applies to any language in which a scientific community thinks together. Many instances of communication, however, do not involve thinking together. Here the Uniqueness Demand is not justified and variations of sense can be tolerated. Without an intellectual community, we may sometimes manage to parallel each other in valid argumentation, but rarely, if ever, will we manage to genuinely think together. When it comes to Frege's understanding of linguistic communication, no one size fits all.

7. Conclusion

For Frege, following Trendelenburg et al., language is primarily tool for thinking and only secondarily a means of communication. When it comes to individual thinkers, the Uniqueness Demand is justified by the expected effects of thinking in ambiguous languages: thinking in such languages makes us prone to certain sorts of errors in our reasoning. When it comes to joint inquiry, the Uniqueness Demand is justified by the effects of our thinking together in ambiguous languages: even if our individual reasoning remains coordinated, internally, our reasoning together will not be so coordinated. A reason or justification for you may not be such for me, and some of us may be led into error even while others are thinking and reasoning perfectly well. When there is no joint investigation, however, variation in sense can be tolerated—for none of this threatens our ability to coordinate our actions. By placing Frege in the

Herder-Trendelenburg tradition, we thereby arrive at a new and more satisfying understanding of Frege's theory of sense and reference, both as applied to the fragments of language in which we think and as applied to the languages we speak.[19]

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