



UvA-DARE (Digital Academic Repository)

Models of language: towards a practice-based account of information in natural language

Andrade Lotero, E.J.

[Link to publication](#)

Citation for published version (APA):

Andrade-Lotero, E. J. (2012). Models of language: towards a practice-based account of information in natural language Amsterdam: Institute for Logic, Language and Computation

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <http://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

Chapter 2

Understanding and Communication

2.1 Introduction

A criticism is always a criticism from somewhere. A proper understanding of the present work requires to take this *motto* into account. In these pages a criticism against the formal semanticist's picture of language, linguistic competence, and linguistic communication shall be developed from what I call a "descriptive view" of language. I shall then begin with a very brief motivation for such a view.

2.1.1 Motivating the criteria of adequacy

Why is it important for us to carry out a study of language? The answer assumed here is that a study of language is important because language partly make us into what we are. One way to understand why language make us into what we are is to say that language is somehow related to what concepts we use and recognize. Accordingly, the criteria of adequacy that I shall propose in a moment arise from the idea that a study of language is important to the extent that it provides an account of the nature of our concepts and our relation to them.

Furthermore, it is assumed here that our concepts are partly characterized by the ontology that they presuppose. In order to motivate our criteria of adequacy, let us make a small digression into some features of the ontology presupposed by our concepts. I must hasten to make clear, however, that there is a principled difference between the ontology presupposed by our concepts and metaphysics as such. In fact, even if someone puts forth a metaphysical claim, say by arguing that everything ultimately supervenes on the physical, her argument for this very claim can appeal to theories, logic, common-sense, beliefs, etc., and thus her language presupposes 'objects' that do not belong to the metaphysics that she tries to defend. Moreover, the question as to what metaphysics provides the framework of a particular ontology presupposed by our concepts need not be raised in a discussion of the ontology presupposed by our concepts. To put it another way,

the study of the ontology presupposed by our concepts can remain, by and large, silent about metaphysics as such. For a study of the ontology presupposed by our concepts is not in the business of making claims as to what the ultimate constituents of the world, the universe, or reality as such, are.¹ Thus, the ensuing discussion does not aim to take a stance as regards metaphysical commitments.

Now, for ease of presentation, let us say that if C is a concept, “[C]” refers to the concept’s extension and “ $x \in [C]$ ” refers to the claim that an object x belongs to the extension of C .

The ontology presupposed by a concept can be classified in terms of the factors required to determine the concept’s extension. To begin with, there is a kind of ontology, namely natural kinds, for which instruments (e.g., spectrometer, test strip, gas analyzer, etc.) can be build to identify (more or less accurately) whether $x \in [C]$ or not. The instrument is regimented by conventions and norms of use, but the assumption is that $x \in [C]$ (or $x \notin [C]$) holds independently of whether the instrument is used. The instrument is used to *discover* that $x \in [C]$.

This reasoning can be extended to concepts for which our own perceptions are the instrument used to identify whether $x \in [C]$ or not. The ontology presupposed by these concepts is such that whether $x \in [C]$ or not is independent from our perceiving that this is so. *A fortiori*, this ontology is independent from our use of sentences such as “This is a ‘ C ’ ” (by pointing to x).

Now, there is a different kind of ontology, I shall call them *symbolic kinds*,² which seems closely related to our use of words, expression, gestures, and symbols. (Henceforth I will refer to words, expressions, gestures and symbols as *signs*.) This claim should not be understood as saying that the ontology presupposed by our concepts is partitioned between natural and symbolic kinds: other kinds might well exist, though I shall only discuss these two.

The ontology presupposed by symbolic kinds requires that the sign that expresses the concept be used appropriately so as to stipulate that $x \in [C]$. In this case the assumption is that $x \in [C]$ depends on the appropriate use of the sign that expresses the concept—i.e., that $x \in [C]$ is created (partly) by the uses of signs.

For example, whether a soccer player gets a yellow card or not in a given championship depends, *inter alia*, on the referee stopping the game and showing a yellow card to the player in a particular way. That is, if x is a soccer player and C is the concept “to-have-gotten-a-yellow-card” (or “to-have-been-booked”), the fact that $x \in [C]$ depends, *inter alia*, on the use of a gesture that expresses the concept “to-have-gotten-a-yellow-card.” Another example is to be granted a visa

¹To be sure, it is true that a particular natural language metaphysics may presuppose a particular metaphysics (as such). I will come back to this discussion in the “Final comments,” but a detailed discussion of the ontology of practices is beyond the scope of the present work, and shall remain as a topic for future research.

²I will not pursue here a comparison between symbolic and social kinds; it shall remain as a topic for future research.

to legally work in a country. You are granted a visa when you fulfill some requirements, apply for the visa, pay the respective fee, and finally receive a letter from the embassy and a stamp in your passport. That is, if x is a citizen and C is the concept “to-have-been-granted-a-visa (for country X),” the fact that $x \in \llbracket C \rrbracket$ depends, *inter alia*, on the use of a sign (e.g., a stamp or a letter) that expresses the concept “to-have-been-granted-a-visa.” Yet a different example is that a good—e.g., food, furniture, clothes, etc.—is worth a determinate price (in a given currency). The price is fixed in supermarkets by stickers or bar-codes, and in an open air market by the seller’s statement as to how much a good is worth. That is, if x is a good and C is the concept “to-be-worth- p (given a particular currency),” the fact that $x \in \llbracket C \rrbracket$ depends, *inter alia*, on the use of a sign (e.g., the seller’s statement) that expresses the concept “to-be-worth- p .”

Given that parcels of the ontology that our concepts presuppose, at least *prima facie*, somehow depend on our uses of language, a study of language must account for such dependence.

The stance suggested by the previous ideas does not require metaphysical commitments. It is neutral as to whether our language and concepts are ultimately nothing over and above physical entities—maybe because what exists out there in the universe are only physical particles moving in the space. However, it is not neutral as regards the requirement that our account of language should explain why some of our concepts depend, or seem to depend, on our uses of language.³

This stance is relevant to an independent characterization of language, meaning, and understanding. Given that the meanings of signs can be identified with concepts, we can claim that some meanings of some signs are symbolic kinds. A theoretical account of meaning is, therefore, accountable to explaining this informal notion of symbolic kinds.⁴

The concept of understanding is closely related to the concept of meaning. I take it that understanding a sign consists, at least in part, in the recognition of the extension of the meaning of the sign. Let us recall in passing that we have identified the meaning of a sign with a concept. One does not attribute understanding of the concept, say, chair to someone that does not have the ability to

³It might be important to bear in mind that physicalism, i.e., “the thesis that everything is physical, or as contemporary philosophers sometimes put it, that everything supervenes on, or is necessitated by, the physical” Stoljar (2009), need not endorse explanatory reductionism, according to which “all genuine explanations must be couched in the terms of physics, and that other explanations, while pragmatically useful, can or should be discarded as knowledge develops” (*Idem*). This remark gives substance to the above-mentioned stance’s being neutral as regards metaphysical commitments. For one can be a physicalist or not, and yet reject explanatory reductionism (which is rejected by the above-mentioned stance).

⁴Furthermore, the concept of meaning plays a role in situations where, e.g., we use a dictionary to justify what the meaning of a particular expression is. A study of language and, in particular, a study of the semantics of natural language, is accountable to explaining these situations, where the concept of meaning plays an important role in our use of language. I will come back to this requirement in chapter 4.

recognize chairs (although errors can be conceivable). Or one does not attribute understanding of the concept measuring to a person that cannot recognize the simplest acts of measuring (e.g., using a ruler or a meter, or an arbitrary unit of comparison). Since some concepts are symbolic kinds, an account of understanding is accountable to the particularities of the recognition of this kind of concepts. Symbolic kinds depend on our uses of signs. Hence, an account of understanding is accountable to how we carry out the recognition of uses of signs.

2.1.2 Criteria of adequacy

The use of a sign depends, among other things, on how we experience situations where the sign is used and how we react to these experiences (by doing or saying something). Even if in the end the use of a sign is shown to be nothing over and above some peculiar brain activity, an account of such an use should be compatible with a description of these experiences and reactions. Hence, our first criterion is that an account of language should preserve both our descriptions of our experiences of language-use in everyday practices (i.e., when I, as experiencer, use language; or when I experience someone else using language) and our descriptions of our reactions to these experiences (i.e., when I, as agent, react to an experience of language-use by doing or saying something; or when somebody else reacts to (what can be taken as) her experience of language-use).⁵

We can try and make the gist of this criterion clearer by means of an analogy with accounts of perception. Suppose that the philosophical problem we were to address is to explain human perception. The present criterion of adequacy will rule out the account of perception that consisted only of a mathematical mapping from a two dimensional array into a three dimensional one. The reason is that the three dimensional array still needs to be perceived from a human perspective, and the explanation of this perspective is precisely what the account was required to explain in the first place. Any account of perception is required to explain that when we perceive a pencil, a bottle, or a tree, etc., we do not (only) ‘perceive’ a 3D matrix of colors. When we perceive an object we cannot help but ‘project’ onto it some possible uses (e.g., to write with it, to drink some beverage from it, to climb it, etc.). We are also required to explain why our experience modifies our perceptions. For instance, when we see a letter for the first time we only see a funny drawing, but after we learn how to read we cannot help but see the letter as a letter (and maybe also imagine that we hear a sound or that we make a sound). These are some examples of descriptions of experiences that the account of perception as a mapping does not preserve.

⁵No doubt my appeal to these descriptions will greatly benefit from an empirical study of how different groups of people make descriptions of their experiences when using language and their reactions to uses of language. Such an empirical study goes beyond the scope of this study. The reader can use her own descriptions in her assessment of my arguments.

Second, and heeding the motto that the fewer theoretical concepts the better, I stipulate that a theoretical distinction or identification should only be posited when it preserves our descriptions of our uses of language (or signs in general) in everyday life. Note that since an account of language might very well use theoretical distinctions, the second criterion is a particular case of the first one.

For the sake of clarity, let us examine the following example of a theoretical distinction that will *not* be ruled out by the second criterion. Let us suppose that the theorist wants to posit a theoretical distinction concerning the concept of a practice according to the following statement. In order for agent *A* to understand practice *p*, *A* has to be able to carry out instances of *p*. This statement entails a distinction among practices in the sense that two classes are produced: one class contains the practices for which the statement holds and another class contains the practices for which it does not hold. This distinction meets the criteria of adequacy only if it preserves our descriptions of language-use, and our uses of signs in general, in everyday life. Since we can find simple descriptions of everyday practices that satisfy the statement and practices that falsify it, the distinction is adequate. For instance, starting out from the claim that *reading* is an everyday practice, we can ask ourselves whether an agent *A* requires to read in order to understand what reading is all about. In my view, it is clear that we would not describe someone's experiences with written language as acts of understanding unless she was able to read. Hence, reading is a practice that satisfies the statement. On the other hand, starting out from the fact that football *soccer* makes part of our everyday life, we can ask ourselves whether an agent *A* requires to play soccer in order to understand what soccer is all about. In my view, it is clear that someone's experiences can be described as understanding soccer, as well as the signs used therein (e.g., the court's divisions, the uniforms, the referee's cards, the flags, etc.), without her being able to play soccer. Hence, soccer is a practice that falsifies the statement. Thus, the distinction is adequate as far as the second criterion of adequacy is concerned.

Note that these criteria are far away from the by now widely discredited behavioristic orientation in psychology and philosophy. To begin with, the categories used by behaviorism are those of stimulus and response. These categories must be described in 'objective terms' with no reference to subjective experiences. This cannot be further from the present criteria of adequacy. Note that while people's reactions in terms of doings and sayings are an important part of the present criteria, they constitute but one element thereof. For what the criteria is concerned with are our *descriptions* of our *experiences* of our uses of signs, and our descriptions of our reactions *to these experiences*. Hence, such descriptions are not couched in the 'objective terms' that behaviorism propounds as 'respectable'. The criteria recognizes the interdependence between reactions and experiences and does not attribute primacy to either one of them.⁶

⁶This claim will become clearer in my discussions of communicative success (see §2.3.3) and

2.2 Against the compositional structure of linguistic competence

2.2.1 Outline of the argument

The formal semanticist's achievement consists in the stipulation of a number of semantic rules, according to which the meanings of complex expressions are computed from the meanings of their constituents. She usually claims (or should claim if she is to attribute empirical relevance to her achievement (see §1.1)) that these semantic rules account for linguistic competence—i.e., the ability to understand and produce language.⁷ The formal semanticist claims that linguistic competence, as far as she might be concerned, consists in knowledge⁸ of a (finitely representable) set of syntactic and semantic rules that generate all meaningful sentences of the language—I shall call this claim the formal semanticist thesis about linguistic understanding.

The formal semanticist's thesis about linguistic understanding: *A* is able to understand (produce) a sentence *S* in a language *L* if and only if *A* knows the rules of generation of the literal meaning of *S* in *L*.

It is important to bear in mind that, although the thesis has the form of a *definition*, it is no more than a *theoretical explanation*. Thus, the thesis deals with three elements: (i) an informal notion of understanding mentioned in the left-hand side; (ii) an articulation of theoretical concepts presented in the right-hand side (i.e., the identification of a language as a set of rules, the reification of language intelligibility (see §3.1.3).

⁷Davidson (1969) claims that “[i]t is conceded by most philosophers of language, and recently by some linguists, that a satisfactory theory of meaning must give an account of how the meanings of sentences depend on the meanings of words. Unless such an account could be supplied for a particular language, it is argued, there would be no explaining the fact that we can learn the language: no explaining the fact that, on mastering a finite vocabulary and a finitely stated set of rules, we are prepared to produce and to understand any of a potential infinitude of sentences. I do not dispute these vague claims, in which I sense more than a kernel of truth. Instead I want to ask what it is for a theory to give an account of the kind adumbrated” (quoted from Davidson (1984, p. 17)). Chierchia & McConnell-Ginet (2000), when discussing some general properties of semantic competence, claim (p. 7): “Whatever linguistic meaning is like, there must be some sort of compositional account of the interpretation of complex expressions as composed or constructed from the interpretations of their parts and thus ultimately from the interpretations of the (finitely many) simple expressions contained in them and of the syntactic structures in which they occur.” Moreover, Ema Borg, in her *Minimal Semantics* (2004, p. 56) claims: “The best explanation for the generative nature of our linguistic understanding seems to be that the meaning of complex wholes must be determined by the meanings of their parts and their mode of composition. For if this is the case, then it is no mystery why our understanding of complex linguistic items has an indefinite range.”

⁸The term ‘knowledge’ is contentious, but nothing in my discussion hinges on it, as shall become clear later on. If desired, the term can be replaced by ‘cognizance’, ‘tacit knowledge’, or any other non-explicit, non-introspective relation between a subject and an object.

literal meaning, the stipulation that a literal meaning is generated by the rules of language, and the appeal to a relation between the subject and such rules of language); and (iii) a relation between the two, namely, that the articulation of these theoretical concepts explains the informal notion.

We will assume here that the informal notion of linguistic understanding can be characterized as in §2.1.1. Given that we are not dealing with a definition of linguistic understanding, but with a theoretical explanation of an informal notion, this explanation has to be assessed against our criteria of adequacy. I shall show that the formal semanticist's thesis does not meet this criteria of adequacy.

The gist of the criticism will be that our descriptions of language-use in everyday life are incompatible with the formal semanticist's thesis. For the thesis stipulates that speakers know the rules of their language and, hence, that they understand the entire language. Moreover, the formal semanticist claims that such a knowledge is one of the factors on which language-use depends. This picture of linguistic understanding clashes with our descriptions of language-use in everyday life, which show that people are not completely competent with (i.e., people have incomplete understanding of) many of the expressions that they nevertheless successfully use.

However, the formal semanticist might easily fail to see the point of this criticism. For she will immediately fall back to her distinction between structural and lexical meanings. She will postulate that the competent speaker has complete knowledge of structural meanings, but incomplete understanding of lexical meanings. Since the formal semanticist claims that her achievement is addressed only to structural meanings, she will claim that she never attempted to explain 'complete' linguistic competence. Hence, she could claim that the descriptions of our language-use need not conflict with the thesis.

The argument has to be complemented, therefore, with a more direct criticism of the formal semanticist's thesis. For when she claims that she never attempted to explain 'complete' linguistic competence, she assumes that there is a legitimate notion of linguistic competence that she is addressing instead. This notion might not be the notion that we independently characterized above, but she holds on to the conviction that knowledge of semantic rules is a legitimate explanation of our linguistic abilities. Thus, the second criticism will be addressed to the purported 'intuitions' that, in the formal semanticist's view, give rise to a characterization of our linguistic abilities in terms of rules. For rhetorical purposes, I shall start with this criticism of the intuitions that purportedly give rise to the formal semanticist's thesis, and next shall present why this thesis does not meet the criteria of adequacy.

2.2.2 Criticism of the formal semanticist's achievement

The formal semanticist claims that her thesis explains a number of 'intuitions' about linguistic competence, namely, systematicity, the infinity of language, and

productivity. I shall argue that whatever linguistic facts there are behind these purported intuitions, they do not force on us the conception that language is a set of sentences generated from a set of rules and that linguistic competence is knowledge of these rules. Henceforth I shall refer to this conception as the ‘compositional structure of linguistic competence’.

Systematicity

Let us consider the claim that in order to explain ‘systematicity’ we must conceive of linguistic competence, inasmuch as the formal semanticist may be concerned, as knowledge of a set of syntactic and semantic rules. But before we examine more closely the claim of systematicity, we should pay attention to a feature of the formal semanticist’s conception of linguistic competence. If linguistic competence consists of knowledge of semantic (and syntactic) rules, we must draw a distinction between structural semantics and lexical meanings. For semantic rules are defined on semantic categories of expressions, which constitute the structural, or formal, meanings of these expressions, not on the ‘full’ meaning of individual expressions, which constitute their lexical meanings. Semantic rules are, as it were, ‘blind’ to lexical meanings. According to this distinction, different (non-synonymous) expressions receive different lexical meanings, although they could belong to the same semantic category and thus have the same structural meaning.

To give an example, the formal semanticist is not concerned with the analysis of the meaning of the sentence “Theaetetus flies” as such, but only with the way its meaning depends on the meaning of “Theaetetus” and “flies.” Moreover, he or she is not concerned with what the ‘full’ meaning of “Theaetetus” or “flies” might be, but only with what their contribution is to the meaning of the sentence. The ‘full’ meaning of “Theaetetus flies” stands in the same footing as the meaning of “Odysseus sleeps;” they are to be explained by the same rules. The important things are: (i) the different kinds of entities that linguistic expressions refer to, e.g., entities, properties, etc. — i.e., a semantic category; and (ii) how these kinds can be used to yield the meaning of complex expressions.

A very important remark is that this point is valid even if we allow for semantic sub-categorization, that is, if we split up a category into different sub-categories that have different semantic properties. For instance, Montague distinguishes, by means of “meaning postulates,” between intensional and extensional transitive verbs, e.g., “seek” and “kiss.” The point remains that these sub-categories do not determine the ‘full’ meaning of individual expressions. Semantic rules, even if dependent on sub-categories, are ‘blind’ to lexical meanings.

The claim of systematicity is as follows: “What we mean when we say that linguistic capacities are systematic is that the ability to produce/understand some sentences is intrinsically connected to the ability to produce/understand certain others [...] You don’t, for example, find native speakers who know how to say [...] that John loves the girl but don’t know how to say [...] that the girl loves John” (Fodor and Phyllyshyn, 1988, p. 37).

As Scholz and Pullum (2007) rightly point out, systematicity is sometimes conceived as a property of thoughts, sometimes as a property of natural language, and sometimes as a property of linguistic competence. Furthermore, I wholeheartedly agree with Stokhof's and Groenendijk's (2005) request of justification before we decide to run together these three properties, since this identification seems to conflate *prima facie* different phenomena. Moreover, that these properties can be run together (or not) would be a substantial empirical finding, and hence this identification cannot be relegated to a mere ideological fiat. Following Stokhof & Groenendijk, I do not agree with such an identification, and will try to address systematicity as a claim about grammar and about linguistic understanding separately, although in a parallel way.

It is not altogether clear what the above-mentioned definition of systematicity may amount to as a phenomenon of linguistic competence (natural language⁹). Mainly because the examples used in this definition are quite trivial and circumscribed (see below and fn. 10). As Scholz and Pullum (2007) rightly point out, most of the examples available in the literature are straightforward variations of Fodor's and Pylyshyn's example.¹⁰ Hence, it is not altogether clear how systematicity can be an argument for the compositional structure of linguistic competence. However, I will take it that these arguments are a sort of sufficient reason, or best explanation, to account for certain 'facts' of linguistic competence (natural language). The general schema of the argument from systematicity is as follows:¹¹

⁹In this and the forthcoming paragraphs, I will discuss outside brackets the claim of systematicity as addressed to properties of linguistic competence, and will put between brackets the respective claim as addressed to properties of natural language, that is to say, grammaticality.

¹⁰Scholz and Pullum (2007, p. 376) claim that "[i]t must come as a bit of a shock to a reader approaching the literature for the first time to discover that (as a number of authors have remarked; see inter alia Niklasson & van Gelder 1994, Cummins 1996, Hadley 1997, and Johnson 2004) the large body of work on systematicity generally operates without benefit of any clear characterization of the crucial notion [...]. But what is that property or phenomenon? Hardly anybody says. Instead they mostly rehearse very briefly a couple of utterly trivial examples of the supposed consequences of the systematicity of the language capacity (often the ones given by Fodor and Pylyshyn), and move on quickly."

¹¹Compare Fodor's and Pylyshyn's claim that "[i]f you assume that sentences are constructed out of words and phrases, and that many different sequences of words can be phrases of the same type, the very fact that one formula is a sentence of the language will often imply that other formulas must be too: in effect, systematicity follows from the postulation of constituent structure. Suppose, for example, that it's a fact about English that formulas with the constituent analysis 'NP Vt NP' are well formed; and suppose that 'John' and 'the girl' are NPs and 'loves' is a Vt. It follows from these assumptions that 'John loves the girl,' 'John loves John,' 'the girl loves the girl,' and 'the girl loves John' must all be sentences. It follows too that anybody who has mastered the grammar of English must have linguistic capacities that are systematic in respect of these sentences; he *can't but* assume that all of them are sentences if he assumes that any of them are" (Fodor and Pylyshyn, 1988, p. 38). Compare also Borg's claim that "our linguistic understanding is systematic: the grasp of the meaning of a whole sentence seems to be systematically related to the grasp of the meaning of its parts. Thus, among agents with a

Premise 1: Meaningful (grammatical) sentences are generated by semantic (syntactic) rules, and linguistic competence comes down to knowledge of a finite presentation of these rules—this is the compositional structure of linguistic competence.

Corollary of premise 1: If a competent speaker understands¹² sentence S (respectively, if S is grammatical), he or she understands any sentence $S[e_1/e_2]$ (respectively, any $S[e_1/e_2]$ is grammatical), for every e_2 of the same semantic (syntactic) category as e_1 .

($S[e_1/e_2]$ does not strictly speaking refer to a single sentence. It stands for a sentence that is the same as S but where one or more instances of e_1 are replaced by e_2 .)

Premise 2: “John” is an expression of the same semantic (syntactic) category as “the girl” and the competent speaker understands “John loves the girl” (“John loves the girl” is a grammatical sentence).

Conclusion: The competent speaker understands “John loves John,” “the girl loves John,” “the girl loves the girl” (“John loves John,” “the girl loves John,” “the girl loves the girl” are grammatical sentences).

The idea behind the general schema of the argument from systematicity, which seems to represent a sort of Deductive-Nomological Model of explanation, is that systematicity can be seen as a consequence of, and thus being explained by, the ‘compositional structure of linguistic competence’. In other words, the idea is that representing language as a set of sentences generated from a set of rules and representing linguistic competence as knowledge of this set of rules explains, *qua* sufficient reason, the phenomenon of systematicity.

The first thing we should note in order to assess the general schema of the argument from systematicity is that the conclusion must be an empirical phenomenon, an observable set of data that has to be explained by the theory of linguistic competence (or by the syntactic theory). It is in this sense that the idea of “explanation” is exploited by the argument, that is, by making an analogy with the way in which in physics observations and predictions are deduced from

normal linguistic competence, if someone understands the sentence ‘Bill loves Jill’ they will also understand the sentence ‘Jill loves Bill’. Yet again no theory which simply pairs sentences with their meanings will be able to predict or explain this systematicity of linguistic understanding. These properties of systematicity and productivity seem to point to a key fact about linguistic meaning, namely that it is compositional. That is to say, the meanings of complex linguistic items, like sentences, are a function of the meanings of their parts together with the mode of composition of those parts. It is this property which explains the fact that our understanding of meaning is productive and systematic” (Borg, 2004, p. 21).

¹²Understanding a sentence is reduced here to knowledge of the semantic rules that determine how the meaning of the sentence is composed from the meaning of its constituents. It does not include knowledge of the lexical meaning of the words of which the sentence is composed.

a theory. But we might well ask to what extent the ‘rule-like’ behavior of linguistic competence (grammaticality), where rules are, as it were, ‘blind’ to lexical meanings, can be observed.

I shall show that, given some fairly natural choices of semantic (syntactic) categories, language is rife with examples of the unsystematic kind. Hence, the myriad cases of unsystematicity represent a *reductio* of the general schema of the argument from systematicity, which implies that the conjunction of the premises must be false for this parcel of language. Thus, either we should abandon the assumption of a ‘compositional structure of linguistic competence’, or we should claim that the expressions that are exchanged for one another in these examples do not belong to the same semantic (syntactic) category, which entails that the theory from which we obtained these categories must be modified. But the argument can be repeated this time over the modified theory, leading to a predicament. But before we are in a position to present the predicament we have to discuss some examples of unsystematicity.

There are situations that are unsystematic from the point of view of linguistic understanding. For instance, if we consider that “John” and “KFC” are of the same kind, that is, proper names, it follows that although one can understand “John loves KFC,” the same is not true of “KFC loves John.” To preserve systematicity we need to stipulate that “John” and “KFC” belong to different semantic kinds.

Moreover, lexical meanings get in the way of systematicity. Consider the following examples: although someone can understand “John sees the eyeless shrimp,” the same is not true of “the eyeless shrimp sees John.” Likewise for “Mary loves the feeling-less psychopath” and “the feeling-less psychopath loves Mary.” To preserve systematicity, we need to stipulate that “John” and “the eyeless shrimp” belong to different semantic kinds. The same goes for “Mary” and “the feeling-less psychopath.”

What is more, consider the following examples: “John sees Stevie Wonder,” “Jane listens to Hellen Keller,” “Mary loves Albert Hamilton Fish.” The corresponding inverted sentences (i.e., the subject in place of the object and viceversa) are ‘senseless’, or at least very problematic to understand, since Stevie Wonder is blind, Hellen Keller was deaf-blind, and Albert Hamilton Fish inspired the character of Hannibal Lecter (a scaring Hollywood psychopath). In other words, there is a clear asymmetric understanding of these sentences.¹³ To preserve systematicity, we need to stipulate that “John,” “Jane,” “Mary,” on the one hand, and “Stevie Wonder,” “Hellen Keller,” “Albert Hamilton Fish,” on the other hand, belong to

¹³Note that it is not allowed to claim that whatever problem there is in understanding these sentences, it arises at the level of interpreting the full meaning of the sentence, not its structural one. For this move already presupposes what it is intended to show, namely, that ‘understanding’ must be equated with ‘knowledge of semantic rules plus knowledge of literal meanings’. That is, this move is question begging. The term understanding that appears throughout this paragraph has to be pre-theoretical, since we are discussing the empirical data that the account is supposed to explain.

different semantic categories. But since similar problems of systematicity follow from “Albert Hamilton Fish sees Stevie Wonder,” further sub-categorization is required. There always seems possible, with a little imagination, to find a couple of sentences that will oblige this sort of subdivision in order to preserve systematicity.

What the champion of subcategorization would need to show is that this method will eventually stop in some atomic sub-sub-...-categories. But where does that stop? Do we stop at a place where stipulation of rules is still plausible? Such problems are substantial. On the one hand, it is quite inappropriate to stop at a point where there is a rule for each lexical (unambiguous) item. For in such a point there will be nothing left of a usable notion of a semantic rule. The postulated atomic sub-sub-...-categories must contain many lexical (unambiguous) items to avoid the triviality of a rule-based account that utilizes rules that have no generality. Besides the triviality of the account, would it provide any interesting information? Would it even be feasible to produce such an account? Moreover, the claim suggested by the previous discussion is that should these atomic sub-sub-...-categories exist, it would be quite an achievement to demonstrate their existence; but such an existence, however, must not be posited by fiat. And it should not be posited by fiat, since it is a purported fact of linguistic competence (natural language) that is supposed to be explained by the formal semanticist’s thesis. To stipulate these atomic sub-categories would destroy all of the bite of the purported explanation provided by this thesis. Another problem is that, according to the formal semanticist, structural meaning is independent from lexical meaning. But if we are to preserve systematicity, structural meaning turns out to depend on lexical meaning, as the above-mentioned examples show. Thus, the formal semanticist is put under considerable pressure to defend the idea that her domain of inquiry is the set of structural meanings and that this set is independent from lexical meanings. For without being able to defend such an independence, she will not be able to avoid the problems raised by the argument from incomplete understanding, as explained above in §2.2.1.

Let us now move to systematicity as a property of natural language. We can follow in Scholz’s and Pullum’s (2007) footsteps and claim that one can represent the property of systematicity by the following statement:

A language *L* is systematic if and only if (S) holds for all *A*:

(S) *A* is a constituent of *L* only if for all *B* of the same linguistic kind as *A*, and for all things *C*, *C* can compose with *A* (in a certain way) to form a sentence if and only if *C* can compose with *B* (in that same way) to form a sentence.

What makes a language systematic, in other words, is that the only constituents permitted in it are those whose category-mates (constituents of the same linguistic kind) all compose in the same way with exactly the same other linguistic material (Scholz and Pullum, 2007, p. 387).

Examples of unsystematicity occur unless one requires that intersubstitution be restricted to fine-grained categories, which, in the case of good-old-fashion adjectives, seems to require a big amount of subcategories:

Most of the distinctions drawn to make all these subcategories turn out to cross-classify, so that categories have to be intersected repeatedly, making them more and more specific. Take English adjectives, for example:

- some take complements (as in happy with that) and some don't;
- of those that do, some take PPs (fond of it), some take non-finite clauses (bound to be of use), some take finite clauses (aware it happened), some take more than one of these (glad of it, glad to be of use, glad it happened), and so on;
- some have obligatory complements but most have optional complements;
- some are optionally usable in attributive modifier function (before a noun), some can only be used attributively, and some can never be used attributively;
- some are optionally usable in postpositive complement function (after the head noun in an NP, as in anyone intelligent), some can only be used postpositively (trouble aplenty), and some can never be used postpositively;
- some are optionally usable in predicative complement function (in a VP, as in feel sad), some can only be used predicatively, and some can never be used predicatively.

(Scholz and Pullum, 2007, p. 392)

The situation is summed up by the following claim, which Scholz and Pullum (2007, p. 390) attribute to Johnson (2004): “[O]n the one hand, if anything like a standard system of syntactic categories for English is assumed, English is clearly not systematic in the sense of [(S)]; and on the other hand, if (S) [...] is stipulated to hold, then English will have an arbitrary and extremely fine-grained set of categories that no syntactician could be a realist about.” As we argued above, this situation is not restricted to systematicity as a property of natural language, but it extends to systematicity as a property of language-users as well.

A champion of the ‘compositional structure’ can opt for the latter option, that is, he or she can stipulate semantic (syntactic) categories in such a way as to preserve systematicity. But such a move comes at a price. For systematicity turns out to be stipulated by fiat, and no longer can it be claimed to be motivated from empirical data. In other words, the argument from systematicity, which is supposed to show that we must endorse a ‘compositional structure of linguistic competence’, is not the best explanation of empirical data. For the compositional structure of linguistic competence turns out to be stipulated in advance. In more

colloquial terms, the argument from systematicity can only convince believers of the ‘compositional structure’, and cannot convince non-believers. It is an argument with no force at all.

To bring the discussion of this ‘intuition’ to a close, we can see that we have reached the intended conclusion of the argument: whatever linguistic facts there are behind the ‘intuition’ of systematicity, they do not force on us the conception that language is a set of sentences generated from a set of rules and that linguistic competence is knowledge of these rules. Systematicity is more of a methodological choice than a best explanation of facts of linguistic competence (natural language). Moreover, if we bring to bear the criteria of adequacy, the stipulation of systematicity is incompatible with our descriptions of our uses of language in everyday practices, where words are categorized into semantic (syntactic) categories that do not preserve systematicity. “John” and “KFC” are proper names in the light of our everyday uses of language, but systematicity forces us to posit a theoretical distinction between them; such a distinction does not respect our descriptions of language-use in everyday practices, and hence it does not meet the second criterion of adequacy. Finally, since more and more theoretical distinctions must be posited to preserve systematicity as our analysis goes more fine-grained, such a methodological principle is not parsimonious at all, and thus the theorist is better off without it.

The infinity claim

The next intuition is that of the infinity of language, conceived as an argument in favor of the compositional structure of linguistic competence. I will call this argument *the argument from infinity*, and I take it that it has the following form (compare fn. 14):

Premise 1: There are infinitely many grammatical sentences.

Premise 2: Human understanding is finite.

Premise 3: A competent speaker has tacit knowledge of the entire language.

Conclusion: Language, seen as a set of grammatical sentences, must be generated by a finitely representable set of rules, where some of them are recursive, and linguistic competence must consist in tacit knowledge of a finite presentation of this set of rules.

We should not take for granted premise 1 in the previous argument, notwithstanding the fact that it has been widely agreed upon by linguists and analytic philosophers of language alike.¹⁴ For the question remains, how is it possible to prove that there are infinitely many grammatical expressions?

¹⁴See, for example: “This property of discrete infinity characterizes *every* human language; none consists of a finite set of sentences. The unchanged central goal of linguistic theory over the

Pullum's and Scholz's "Recursion and the infinitude claim" (2010) summarize the myriad claims for infinity in what they call the "standard argument" of the infinity of language (pp. 115f). The argument consists of three steps:

- (I) Syntactic facts: "*I exist* is a declarative clause, and so is *I know that I exist*, and so is *I know that I know that I exist*; *came in and went out* is a verb phrase coordination, and so is *came in, turned round, and went out*, and so is *came in, saw us, turned round, and went out*; *very nice* is an adjective phrase, and so is *very very nice*, and so is *very very very nice*; and so on for many other examples and types of example" (p. 115).
- (II) No English expression has maximal length.
- (III) The collection of grammatical sentences is an infinite set.

Pullum and Scholz argue, in my view correctly, that the step from (II) to (III) is trivial. Indeed, if English, conceived as a set of sentences, were finite, it would have an expression of maximal length. They also argue that the step from (I) to (II) is unwarranted (see below). That is, Pullum and Scholz disagree with the claim that language is an infinite collection of grammatical sentences, since they think this claim is an unwarranted conclusion that cannot be obtained from the syntactic data in (I).

I agree with Pullum's and Scholz's conclusion. However, it is important to realize that linguists and philosophers have argued for the infinity of language in terms of richer conceptions of the syntactic facts described in (I), for instance, in terms of the intuition of productivity, to which we will come back in a moment. But in the "standard argument" the syntactic facts are characterized as a corpus of linguistic data, that is, as lists of sentences recorded during a conversation or sentences that appear in a text.¹⁵ For the time being, let us suppose that the

last fifty years has been and remains to give a precise, formal characterization of this property and then to explain how humans develop (or grow) and use discretely infinite linguistic systems" (Epstein and Hornstein *Letter on 'The future of language'*. (2004, emphasis in the original), quoted from (Pullum and Scholz, 2010, p. 113)). "Recursion pops up all over language: many have argued that the property of recursive infinity is perhaps the defining feature of our gift for language" (Yang *The Infinite Gift* (2006), quoted from (Pullum and Scholz, 2010, p. 114)). "The fact that anyone who has a mastery of any given language is able to understand an infinity of sentences of that language, an infinity which is, of course, principally composed of sentences which he has never heard before [...] can hardly be explained otherwise than by supposing that each speaker has an implicit grasp of a number of general principles governing the use in sentences of words of the language" (Dummett, 1978, p. 451). "When we can regard the meaning of each sentence as a function of a finite number of features of the sentence, we have an insight not only into what there is to be learned; we also understand how an infinite aptitude can be encompassed by finite accomplishments" (Davidson (1965), quoted from (Davidson, 1984b, p. 8)).

¹⁵Such lists, as taken from empirical corpus of both written and spoken language, are rather short in examples where iteration or recursion goes deeper than 2 embeddings. For instance,

syntactic facts are only those in (I). How can we prove that there is no grammatical expression of maximal length?

Pullum and Scholtz claim, in my view correctly, that (II) is usually only asserted, but never adequately justified (2010, pp. 116ff). (II) cannot be obtained by inductive generalization from the observations in (I). For an inductive generalization states that all members of some collection make true certain statement, on the basis of the observation that all members of some subset of the collection make true the statement. But this inference does not, and cannot, state something about the *size* of the collection (2010, p. 118). Moreover, (II) cannot be obtained by mathematical induction without begging the question. In order for mathematical induction on the length of sentences to prove that there is no expression of maximal length—e.g., by proving that the property “Sentence S has no maximal length” for all sentences S —, it has to be assumed that mathematical induction works on the sentences of language. But this assumes that it is true that for every expression of length n there is an expression of length m ($m > n$), that is to say, this assumes (II) (2010, p. 119). In short, an argument to prove (II) in terms of mathematical induction is question-begging.

Someone could still argue that, even if inductive generalizations and mathematical induction do not prove the infinity of language, the facts in (I) can only be explained by appealing to recursive rules, and recursive rules can generate an infinite amount of sentences (see, e.g., fn. 14). However, Pullum and Scholz argue that facts in (I) can be accounted for without using generative grammars (i.e., without appealing to recursive rules that generate infinitely many sentences). The syntactic theory that they propose (as we shall see shortly) is such that it is “compatible with any answer to the question of [...] how many sentences there are” (Pullum and Scholz, 2010, p. 123). Hence, we are not forced to conceive of language as a set of sentences generated by a set of rules, and *a fortiori*, we are not forced to claim that language is infinite.

Karlsson’s (2010) empirical analysis of recursion in European languages shows that “[n]o evidence for nested syntactic recursion of degrees greater than 3 is at hand, neither on clause level nor on phrase level” and that “[t]he extant examples of nesting of degree 3 and even those of degree 2 are so few, convoluted, and almost exclusively confined to written language as to practically falsify the hypothesis of the importance of unlimited syntactic nesting (multiple center-embedding)” (p. 63). Indeed, the claim that language is unbounded and creative can hardly be explained by iteration or recursion given its actual constrained use. Interestingly, iteration or recursion seem to be phenomena more akin to written language; see Karlsson’s (2010, p. 64) claim that “Karlsson (2009) demonstrates in philological detail that multiple nesting arose along with the advent of written language”; see also Verhagen’s (2010, p. 108) claim that “the development of literacy in an individual’s life may play an important role in the general complementation pattern becoming a productive rule, since it is especially through the interaction with texts that the type frequency of this pattern increases dramatically in a person’s linguistic experience. Following this line of thought, the hypothesis suggests itself that it may very well also have been the development of writing systems, and their spreading through human populations, that created the basis for the evolution, i.e., the *cultural* evolution, of general recursion in this area of the grammars of the languages involved” (emphasis in the original).

To give an example, if grammaticality is explained in terms of constraints, instead of generative rules, as it is done in Model-Theoretic Syntax (see, e.g., Pullum, 2007), we have a syntactic theory that does not make any ontological commitments as to what language actually is, nor about the amount of expressions that can be deemed grammatical:

Grammars of this sort are entirely independent of the numerosity of expressions (though conditions on the class of intended models can be stipulated at a meta-level). For example, suppose the grammar of English includes statements requiring (i) that adverb modifiers in adjective phrases precede the head adjective; (ii) that an internal complement of know must be a finite clause or NP or PP headed by *of* or *about*; (iii) that all content-clause complements follow the lexical heads of their immediately containing phrases; and (iv) that the subject of a clause precedes the predicate. Such conditions can adequately represent facts like those in (I). But they are compatible with any answer to the question of how many repetitions of a modifier an adjective can have, or how deep embedding of content clauses can go, or how many sentences there are. The constraints are satisfied by expressions with the relevant structure whether there are infinitely many of them, or a huge finite number, or only a few” (Pullum and Scholz, 2010, p. 123).

There does not seem to be any other way to prove (II) on the basis of (I), thus premise 1 is not warranted. *A fortiori*, the conclusion that linguistic competence must be conceived in terms of knowledge of a finitely representable set of rules that generates all grammatical sentences cannot be argued for on the basis of the infinity claim.

As claimed above, there are richer ways to interpret the syntactic facts (I), which have been used to argue for the claim that language is an infinite set of sentences. One of these claims is the intuition of productivity, to which we now turn.

Productivity

The third intuition has been called ‘productivity’. There are several claims of productivity. But before we turn to a discussion of some of them, it is worth noting that some times they are seen indistinctly as claims of linguistic competence and as claims of natural language. As claimed above, we should approach this conflation with caution, for properties of linguistic competence seem to be, at least *prima facie*, different from properties of natural language. The very formulation of some claims of productivity presupposes such a conflation, but the reader must bear in mind that they have to be treated as claims dealing with either properties of linguistic competence or properties of natural language. However, I will not do here the extra work of pointing out such a distinction in every case.

One claim of productivity consists in that there are words or expressions that can be iterated within some sentences over and over again, in such a way that if someone understands the initial sentence, she will also understand the more complicated one. This claim has been used to argue for the infinity of language. Another claim of productivity, also known as ‘creativity’, consists in that we are able to understand sentences that we have not heard before.

The first claim of productivity is that “elements within a sentence can be iterated time and time again, to produce more and more complex sentences, but the agent who is capable of understanding or producing the initial sentence will also be in a position to understand or produce the more complicated linguistic item” (Borg, 2004, p. 12).

Linguists and semanticists have taken the previous claim as a description of a fact about linguistic competence (and not as a particular way to provide some structure to sheer syntactic facts). Hence, they have seen it as a description of facts about linguistic competence that is richer than the syntactic facts in (I). Indeed, the infinity of language follows from this richer description.¹⁶

If the claim of productivity as described above is a fact about linguistic competence, it can also be used to argue for the compositional structure of linguistic competence in the following way. The compositional structure can be seen as an explanation of such fact in the following way:

Premise 1: Sentences are generated by means of rules, some of which are recursive.

Premise 2: Linguistic competence is (tacit) knowledge of (a finite presentation of) a set of rules.

Conclusion: “... the agent who is capable of understanding or producing the initial sentence will also be in a position to understand or produce the more complicated linguistic item.”

Note in passing that premise 1 is unwarranted, as discussed above with reference to the argument from infinity. For there are syntactic descriptions of sentences that do not entail that sentences are generated by means of rules (where some of them are recursive). This premise can only follow from a preconception about the nature of linguistic competence.

However, my main target will be the claim that productivity is a description of a fact about linguistic competence. If I manage to make a cogent criticism against this claim, not only will I have argued against the use of productivity

¹⁶For claim (II) above, namely, that no English expression has maximal length, is a consequence of productivity. Suppose by contradiction that there is an English sentence of maximal length. Take also the example of what has been traditionally conceived as a productive element: “I know that”. If S were a sentence of maximal length, the sentence “I know that S ” would be a sentence with length greater than the length of S . This is a contradiction.

as an argument for the compositional structure of understanding, but also as an argument for the infinity of language.

Let us start out by paying attention to a necessary qualification that usually accompanies the ‘observation’ of productivity: “The claim has to be that the agent will be *in a position* to produce or comprehend the iterated sentence, since, at some point of iteration, the agent may no longer actually be able to comprehend/produce the sentence. For instance, given too great a number of iterations the agent may run out of time or memory for processing the sentence; however, the claim is that this limitation emerges from features external to the agent’s linguistic competence itself” (Borg, 2004, fn. 7, p. 12). That these ‘limitation factors’ are “external to the agent’s linguistic competence itself” can only follow from a prior conception of what linguistic competence itself is, namely, that it is tacit knowledge of a set of rules. The actual facts suggest that given too many iterations we are not able to comprehend the iterated sentence. We reach a predicament: either a fact about linguistic competence is what we can observe and describe (namely, that linguistic competence is limited), or a fact about linguistic competence is something that we *cannot observe*, but that we can infer only on the basis of an ideological fiat (namely, that linguistic competence is free from limitation factors). But then again, why is the latter a fact about linguistic competence?

We must bring to bear here our criteria of adequacy. Our descriptions of our experiences of language-use point in quite the opposite direction from the ideological fiat. For they show that our linguistic experiences depend on the complexity of the expressions used. The easiest case to consider is tied to the length of the sentence. The longer the sentence, the lesser we experience that we can use it. (The ensuing discussion should not be taken to imply that the only ‘limitation factor’ as regards linguistic competence is the length of the expression; there are other ‘limitation factors’ at play, but I shall only discuss one of them here.¹⁷)

In order to appreciate this point better, let us make an analogy with natural numbers. Our familiarity with natural numbers is directly proportional to the size of the number. We can have a good command of small natural numbers, but this command fades out proportionally to the size of the number.¹⁸ This claim can be made more precise by saying that, given a particular numerical notation, the larger the number, the lesser the command we can have of it. To give an example, assume that we are to use numerals to deal with natural numbers, that is, |, ||, |||, |||| etc. It is clear that it becomes rather cumbersome to deal with numbers that are larger than five.

¹⁷Besides the length of the expression, the kind of ‘representation’ utilized is another limitation factor (see fn. 20).

¹⁸Moreover, our experience of inexhaustibility or unboundedness of natural numbers is tied, although not restricted, to this fading out of our command of natural numbers.

It is worth noting that the claim is not that we cannot have command of considerably large numbers, for we have created appropriate notations to deal with them. The claim is rather that, if we fix beforehand a particular notation, our command of numbers fades out as the numbers get bigger. For instance, instead of using numerals to deal with numbers larger than five, we can use decimal notation to easily handle numbers far larger than those. We can more or less comfortably handle numbers up to several millions in decimal notation (note that these numbers contain around seven or eight digits). But we will feel quite uncomfortable to deal with, say, numbers with a hundred digits in decimal notation. We can switch notations to overcome this limitation, say, by moving on to scientific notation (e.g., 3.4E+100). Yet, this notation becomes cumbersome at some point, when numbers are really large (think of a “googolplex”¹⁹). This process of ‘re-representation’ of numbers, by switching notations, clearly shows that our command of numbers fades out proportionally to the size of the number, but that we have learned to deal with it.²⁰

The same goes for the case of natural language. Witness to this are the myriad resources for ‘re-representation’ that we find in natural language. Technical vocabulary is a case at hand. For instance, a “leap year” is a short for an explanation that every four years our current western calendar loses one day’s time with respect to the Earth’s orbit around the sun, which must be made up for by including one day more in February every fourth year. Clearly, only rarely do we use the explanation. Normally, we use the technical term “leap year.” Acronyms are also cases of ‘re-representation’, or ways to overcome the problem of handling long expressions. Pronouns and anaphora can be seen as yet another example of this strategy. Furthermore, quantifiers (in the case of finite domains), if conceived as abbreviations of very long disjunctions or conjunctions, can also be seen as tools to overcome the problem of handling long expressions.

Now, there is a way in which the claim of productivity can describe a fact of our language-use. However, it would be in such a way that neither the argument of the infinity of language or the argument for the compositional structure can make use of. It *is* possible to claim that, for a particular and restricted fragment of natural

¹⁹A googolplex is the number $10^{10^{100}}$.

²⁰The only way out of this conclusion is to take platonism in mathematics seriously, and to claim that our access to numbers is independent from our means of representation, and that this access is equal for each number. The problem with this move is that it becomes an ungrounded ideology, that is, one that we have no rigorous way to substantiate.

The issue that our ability to deal with numbers is closely tied to the particular representation that has been chosen is also clear when we consider the task of performing arithmetical operations. Marr makes a clear statement at this regard: “[H]ow information is represented can greatly affect how easy it is to do different things with it. This is evident even from our numbers example: It is easy to add, to subtract, and even to multiply if the Arabic or binary representations are used, but it is not at all easy to do these things—especially multiplication—with Roman numerals. This is a key reason why the Roman culture failed to develop mathematics in the way the earlier Arabic cultures had” (Marr, 1982, p. 21).

language in a particular situation, we can *prescribe*, in a similar way as it is done in the case of formal languages, that an unbounded supply of grammatical sentences can be obtained. For example, when a logician that studies, say Epistemic Logic, stipulates that the operator \Box represents the natural language expression “A believes that,” and that this operator is recursive, he is also *stipulating* that, given any expression S , the expressions “A believes that S ,” “A believes that A believes that S ,” “A believes that A believes that A believes that S ,” and so on *ad infinitum*,²¹ are natural language expressions (note that these natural language expressions are useful for the logician). However, any stipulation that a particular expression can be repeated *ad infinitum* within a bigger expression is done in a conscious and explicit fashion, which are properties that do not adorn the purported generative rules that are tacitly known by competent speakers. Note in passing that this entails the negation of premise 3 in the argument from infinity.

Most people on the street do not go about doing their day-to-day activities by stipulating a rule to generate an infinite amount of sentences, nor do they learn it from their parents; thereby, such a stipulation does not make part of everyday life. In fact, the only place where such a stipulation occurs is in logic courses, or courses in formal semantics, where iteration of operators such as “It is possible that”, “It is necessary that”, or “A believes that” plays a role. Furthermore, the fact that people can understand those rules when they are explained to them does not entail that linguistic competence has to be conceived in terms of rules. For there are other ways to represent recursive capacities other than by means of rules. And any such explanation has to take into account the conscious and explicit way in which these stipulations are produced, which is quite problematic for a conception of linguistic understanding such as the one of the formal semanticist.

Thus, rather than a fact about linguistic competence, the first claim of productivity is an ideological claim as to what linguistic competence itself is. In pain of begging the question, this claim cannot be used to argue for the compositional structure of linguistic competence.

Consider now the second claim of productivity, namely, that:

[w]e have no trouble whatsoever in grasping the meaning of sentences even if we have never encountered them before. Consider

²¹Following in Wittgenstein’s footsteps (see Wittgenstein 1954, §208), it is possible to distinguish between an “and so on” proviso from an “and so on *ad infinitum*” proviso, where the former is an abbreviation of a long procedure that is eventually completed, and where the latter is no abbreviation. For instance, the “and so on” can follow an explanation as to how to complete some of the cells in a Sudoku puzzle. The explanation only concerns a limited number of events where the numbers in some cells are filled out, and the “and so on” is meant to abbreviate an explanation as to how to proceed with the remaining cells. On the other hand, the “and so on *ad infinitum*” can follow an explanation as to how to construct the numerals, starting from the numeral for the number one, |, followed by the numeral for the number two, ||, the numeral for the number three, |||, and so on *ad infinitum*.

(1) I saw a pink whale in the parking lot.

Few if any of our readers will have heard or seen this particular sentence before. Yet you can quite easily understand it. How is this feat possible? The experience of understanding a newly encountered sentence like (1) seems much like the experience of adding two numbers we have never summed before, say

(2) $1437.952 + 21.84$.

We can do the sum in (2) and come up with 1459.792 because we know something about numbers and have an algorithm or rule for adding them together. [...] By the same token, we presumably understand a sentence like (1) because we know what the single words in it mean [...] and we have an algorithm of some kind for combining them” (Chierchia and McConnell-Ginet, 2000, pp. 6f).

Though compelling at first sight as it may be, this analogy between language and arithmetical calculations does not carry us too far. Not if it is supposed to be the best explanation of the fact that we understand sentences we have not heard before.

The argument of productivity has the following structure:

Premise 1: Sentences are generated by means of rules.

Premise 2: The set of sentences that can be generated from these rules properly contains the set of sentences that any agent might have heard before.

Premise 3: Linguistic competence is (tacit) knowledge of (a finite presentation of) a set of rules.

Conclusion: The agent can understand sentences she has not heard before.

The explanation is based on an analogy. But this analogy breaks down when we take into account sentences that we *have* heard before. For whereas the arithmetical calculation should always give us the same result in any occasion, a sentence can be understood in different ways in different occasions. For instance, $1437.952 + 21.84$ should always be understood as adding up to 1459.792, whereas “I have had breakfast” can be understood as meaning that I have had breakfast this morning, or that there was an occasion, previous to the time of utterance, when I ate breakfast, or it can be understood in other alternative ways. This is precisely the “contextualist challenge,” which I discussed earlier (see §1.4.4).

Our experiences with sentences are not like our experiences with words. Whereas understanding a word seems to transcend the limits of a single occasion of use, understanding a sentence seems to be tied to the occasion of use in which it is

uttered. Thus, to posit a conception of linguistic competence according to which understanding a sentence is independent from any occasion of use is a move that is not motivated by our descriptions of experiences of language-use—it is rather motivated by an analogy with mathematical propositions.

Finally, it remains to say that we must seek for an account of our linguistic competence that explains that understanding a word transcends the limits of a single occasion of use, whereas understanding a sentence seems to be tied to the occasion of use in which it is uttered. If such an account is found, the observation that we understand sentences that we have not heard before does not add anything to the puzzle: how we understand sentences we have never heard before must be accounted in the same way as how we understand any other sentence. In other words, if we can account *how* we understand sentences, independently of whether the sentence is old or new, we can also account for the fact *that* we understand sentences we have not heard before.

We can underscore the radical change of perspective regarding linguistic competence that is hinted at here. Instead of an abstract relation between an agent and a pseudo-platonic entity called a rule of language, which is independent from our daily activities, what emerges is a perspective that must take into account that agents are embedded in situations where the use of language makes sense, where this sense is not independent from the extra-linguistic activities at work in the situation. If this is indeed the case, it also follows that the account of language cannot be provided in terms of abstract rules, propositions, and ‘limitation-free’ abilities.

To take stock, the underlying scheme in all three cases is as follows. To begin with, the formal semanticist takes for granted certain ‘facts’ about language and linguistic competence. He or she usually also presupposes that properties of language mirror properties of linguistic competence, and hence that ‘facts’ about linguistic competence are also ‘facts’ about language, and viceversa. Next, he or she claims that the compositional structure of linguistic competence—i.e., that language is a set of sentences generated by a set of rules and that linguistic competence is knowledge of these rules—is the best explanation of these ‘facts’. The gist of the foregoing criticisms of the three arguments based on these ‘facts’ is to show the theoretically-laden nature of such ‘facts’. Neither systematicity, nor the infinity of language, nor productivity are ‘facts’ about language or linguistic competence. They are theoretically-laden interpretations of observations about our use of language. The bias of these interpretations is precisely what they intend to show, namely, that language is a set of sentences generated from rules and that linguistic competence is knowledge of these rules. Hence, the arguments based on these ‘facts’ are at best question begging, at worst they are not arguments at all (for they are not explanations of observational facts). Behind these

criticisms, there are our criteria of adequacy. What takes priority when it comes to calling something a fact about language or about linguistic competence are our descriptions of our experiences of language-use in everyday practices. Taking these descriptions at face value gives rise to quite a radical, alternative perspective on what linguistic competence itself is.

The main lines thereof are the following. Linguistic competence is unsystematic—e.g., substitution of object and subject is often blocked by the way the referents of these expressions are understood. To posit semantic categories seems a misguided enterprise, as the level of generality required by a workable notion of rule will always produce a significant departure from our descriptions of our experiences of language-use. We need models of linguistic competence that preserve such unsystematicity. Moreover, our descriptions of language-use show that our abilities to understand and produce signs are not independent from the characteristics of these signs, and that abstracting away from ‘limitation factors’ always produces a significant departure from our descriptions of our experiences of language-use. To understand an expression is not to enter in an ideal epistemic relation with an entity that is intrinsically independent from the means used to express it. Hence, the required model of linguistic competence seems to be more of an embodied ability rather than an abstract, ‘implementation-free’ kind of software. Finally, there is no independent interest in the meaning of mere combinations of words, since our descriptions of experiences of language-use are always tied to particular situations—while, at the same time, the meaning of these words transcends the situation of use. If there is an interest in what a combination of words means, it is relative to a particular situation of use thereof. It seems to me that, in as far we do not want to depart from our descriptions of our experiences of language-use in everyday life, we should consider uses of combinations of words as being embedded in (extra) linguistic activities of embodied agents.

But let us not get ahead of ourselves. Before we delve into more fine-grained characteristics of an alternative model of linguistic competence, we must first dig a little deeper into the inadequacies of the formal semanticist’s thesis; so let us now turn to the argument form incomplete understanding.

2.2.3 Criticism of the formal semanticist’s notion of a competent speaker and her epistemic task

Incomplete understanding

As far as our descriptions of our uses of language in everyday life are concerned, that is, if we are asked and reflect about it, we often refrain from attributing to someone, or even to ourselves, *complete* understanding of some concepts that appear in a body of knowledge that we can, nevertheless, attribute to her or to ourselves. For instance, we know that when Beethoven composed his 9th

Symphony he was already deaf, but most of us cannot tell apart a symphony from a concert or a sonata—either by not recognizing the differences when listening to them, or by not knowing the technical differences. Another example could be that John knows that one of his friend’s father is the owner of a factory, and that they are trying to improve their process of steel galvanization, but if you ask John, there is no much that he knows about the process of steel galvanization—so that John cannot be said to understand the concept expressed by “galvanization.”

What is more, the procedure to measure how far away a star is from Earth is not widely known, so not too many people understand the concept “measuring how far away a star is.” Nevertheless, most of us can understand the claim that the closest star to Earth, different from the Sun, is Alpha Centauri, which has been measured to be located about 4.37 light years away. Our meager understanding of the procedure to measure the distance from a star to Earth contrasts with the familiarity with which we measure the dimensions of a table with a meter tape. Not only do we understand the connection between product (measure) and procedure (measurement), but we can recognize when someone is measuring tables (or chairs, or rooms, etc.); we are fairly competent in carrying out measures with straight rulers, meter tapes, etc; we can teach how to measure with these instruments; we know the various purposes of measuring; etc.

Note that in some of the previous cases, the concept about which we attribute incomplete understanding refers to a process, not to an object that is its product. In particular, we are not talking about “galvanized steel” or “distance between a star and Earth,” but about the way in which we can produce these objects.²² Thus, the general observation arises that we can understand the product without understanding the procedure that produces it. Hence, we can understand the concept related to the product without (fully) understanding the concept related to the procedure. Another general observation is that people can easily recognize whether sentences that contain words that they incompletely understand are or not well-formed. Moreover, some people know that these sentences are true—e.g., that “Beethoven composed his 9th Symphony when he was already deaf” is true—, even though they lack complete understanding of the meaning of some of the words in these sentences.

An important qualification is in order. Consider first another example of a concept that people have incomplete understanding about, namely, the “6 yard box” in a football pitch. It is very easy for many people to recognize its reference—i.e., the small rectangular area inside a bigger rectangular area at each side of the pitch—, but its intension depends on its purpose, which not everyone knows—i.e., the goalkeeper cannot be touched by any player of the other team inside this area. We can contrast this example with the concept of a pacemaker. Most people know

²²In the broad sense of the word “object,” since the ontological status of galvanized steel is somewhat different from that of the measure of a distance. Moreover, the question arises what the relationship is between these ‘objects’ and symbolic kinds. I will come back to this question in the “Final comments.”

its intension, that is, they know its purpose—i.e., to control the heart’s rhythm—, but may not recognize one when they are looking at it. Compare these examples with the concept of a pencil. You cannot count as understanding this concept if you do not know the purpose of a pencil, and you cannot count as having a complete knowledge of English if you cannot recognize a pencil and call it by “pencil.” Not only is it very odd to find out that someone does not understand the concept pencil in our present times, but it also seems strange to say that someone has an incomplete understanding of it. Thus, it seems that some concepts cannot be incompletely understood—and are most often understood rather than not understood—whereas others tolerate different degrees of understanding.

The case of expressions referring to practices

In the case where a referring expression “w” refers to a practice p , understanding this expression can be associated (informally and on the basis of our descriptions of our experiences of uses of language in everyday life) with a number of abilities:²³

- (a) To be able to recognize a ‘fair amount’ of actions as being instances of the practice p by attributing “w-ings” to the actor.²⁴ That is, if the speaker recognizes that someone is carrying out practice p , she can assert, perhaps accompanied by an ostensive gesture, “she is *wing!*” (by analogy with the case when someone calls a rock “rock!”). For instance, when Mary asks Paul “Where is John?” and Paul says “He is presenting an exam.”
- (b) To be able to recognize a ‘fair amount’ of products of p . For instance, if p is the practice of giving money back from the register machine after someone’s paying in cash, “w” can be used to refer to the amount given back after the practice, namely, the change.
- (c) To be able to prompt instances of the practice p by using “w.” For instance, if “w” is the expression “to multiply,” a child could address it to an adult in order for her to multiply something for the child, say two four-digit numbers.

²³This discussion of practices and understanding is based on Schatzki’s *Social Practices* (1996). Schatzki makes an important clarification as to what a practice is *not*. The important concept for him, as well as for our present purposes, is not that of a practice as doing something repeatedly (e.g., when one practices the piano), nor is it the one of practice as opposed to theory. The notion of a practice that Schatzki, and us, are interested in is a “temporally unfolding and spatially dispersed nexus of doings and sayings” (p. 89). For more details, see §3.1.1.

²⁴To understand a word “w” that refers to a practice p , A (or B for that matter) does not need to know the idealized set of all performances (past, present, and future) that are instances of p . No one actually knows this set for any term, nor is it realistic to say that it is humanly possible to know it. However, to the extent that understanding a referring expression requires knowledge of its extension, the subject should recognize a fair amount of ‘objects’ that fall under the expression. ‘Fair amount’ should not entail that there is a minimum proportion of ‘objects’ that must be correctly classified; such an ability does not need to be quantified.

- (d) To be able to respond to the word “w” in ways that are ‘appropriate’ to practice p . For instance, if p is the practice of preparing hot chocolate, someone, say the waiter at a coffee shop, can respond to the expression “hot chocolate, please” by preparing a hot chocolate for the customer.
- (e) To understand the practice p .²⁵

Incomplete understanding of an expression “w” that refers to a practice p can thus manifest itself in different ways. Let A be an agent:

1. For some practices, A can have the ability described in (b), and only very underdeveloped abilities as described in (a), (d) and (e). This claim is based on the general observation that it is possible to understand the product without understanding the procedure that brings about this product. For instance, one can understand a measure that tells how far away a star is from Earth without understanding how to measure this distance or being able to identify when someone is measuring this distance.
2. For some practices, A can have the ability described in (c), and only very underdeveloped abilities as described in (a), (d) and (e). For instance, one can use the expression “integration” (in the mathematical sense) inside a sentence, say, “Can you integrate this function for me?” without understanding the procedure that corresponds to the integration of real functions.

Observations based on incomplete understanding

Against the background of the foregoing discussion of incomplete understanding, we can make the following observations. To begin with, words or expressions for which attribution of incomplete understanding makes sense are such that no clear distinction can be made between a phase of acquisition and a phase of use. That is, for these words or expressions, understanding the concept that they express does not strictly precede the ability to use them (in certain situations to achieve certain purposes).²⁶ For instance, A could be a child and “w” could be the expression “to multiply,” which can be addressed to an adult in order for him to multiply something for the child, say two four-digit numbers. The observation is that the child need not understand the concept of multiplication in order to correctly use the expression “to multiply” in certain situations. Or A could be the captain of an airplane and “w” could be the expression “to diagnose all communication systems (in the aircraft),” which can be addressed to the flight

²⁵Note that understanding “w” is not the same as understanding the practice p that “w” refers to.

²⁶The claim is not that this property applies only to words or expressions for which attributions of incomplete understanding makes sense. There are other words and expressions for which a clearcut distinction between a learning-phase and a using-phase is an unmotivated distinction. But this issue is clearer in the case of the expressions in question.

engineer. The observation is that the captain has indirect ways to know whether the flight engineer carried out the diagnose, but he does not (usually) know how to do the diagnose himself—that is, the captain does not completely understand the concept associated to the expression “to diagnose all communication systems (in the aircraft).”

Moreover, there are at least some words or expressions “w” such that, in particular situations of use, an agent *A* can know the truth value of many sentences that contain “w,” although she has an incomplete understanding of “w.” This follows from the fact that after addressing “w” to *B* to achieve a purpose, *A* knows that “*B* was asked to do w” is true, or that “I have just asked *B* to do w” is true, etc.

There are words or expressions “w” such that to gain understanding of “w” requires much more than knowledge of what ‘objects’ fall under “w” and knowledge of the truth value of sentences that contain “w.” This follows from the observation that there are some practices such that one can gain familiarity with them only by practicing them. For example, one cannot claim that someone understands the practice of reading—and hence, that she understands the expression “to read”—if she is not able read. To understand this expression it is not enough for her to try and say when someone else is reading or to try and have someone read something for her. For she can be fooled far too easily and hence it is not adequate to attribute to her a relatively sound ability of recognition or prompting the practice of reading. Another example is that of the practice of finding the derivative of a function. Someone needs to be able to find the derivative of a function in order for us to attribute understanding of this practice to her. Once again, it is not very likely that she can recognize or prompt instances of finding a derivative if she cannot find a derivative herself. For there are far too many functions that one can find the derivative of, and the outcome of this process is so intimately tied to the function that one has to find the derivative of so that to recognize when someone found the derivative of a function requires to find the derivative oneself. Something similar can be claimed of such practices as to count (small numbers, days, food items, etc.), to give or receive change (when one pays something in cash), to make a description (of an object, a person, a place, etc.), to follow directions, to measure (with a straight rule, a meter tape), to tell the time, and so on.

What the formal semanticist has to offer

We can compare these observations about incomplete understanding with a number of assumptions that the formal semanticist has to make to substantiate his or her account of linguistic competence.

Firstly, the formal semanticist assumes that language is a use-independent object, and that there is such a thing as a competent speaker that has complete knowledge, or understanding, of such an object. Even if the formal semanticist

assumes that the notion of a competent speaker does not straightforwardly apply to people on the street—i.e., that no-one has perfect knowledge of language—, she also assumes that it makes good sense to go about studying language by considering the idealized notion of a competent speaker. The formal semanticist assumes that, even if no-one in the end is a competent speaker, it is conceptually legitimate as far as his/her study of language is concerned to concentrate his/her study on the concept of a competent speaker. This claim can be substantiated by taking a quick look at the notion of an information state, at the notion of linguistic communication, or at the purported relationship between competence and performance. That is, as discussed in §1.2.2, the usual representation of an information state put forth by the formal semanticist is a specification as to which contents of sentences an agent bears an epistemic relation to, and which contents of sentences the agent does not bear an epistemic relation to. Hence, this definition of an information state presupposes that the agent already understands all the sentences of the language—i.e., the agent already possesses linguistic competence (or at least it is presupposed that the agent already understands the sentences that she can use). Moreover, as discussed in some detail in §1.3.4, the model of linguistic communication put forth by the formal semanticist presupposes that the participants of the exchange are already competent speakers, for they already understand the sentences used in the exchange. Participants must decode the literal meanings of these sentences, and on the basis of such meanings they find out the speaker's intentions. Hence, no non-competent speaker can participate in linguistic exchanges (or at least participants are required to be competent regarding the expressions used in the exchange). Last but not least, since competence is one factor, albeit not the only one, at work in the production of language-use, these other factors might interfere with competence and lead to mistakes. Nevertheless, there seems to be no explanation of correct language-use without competence.

Most important for the present argument is the observation that the notion of a competent speaker presupposes that there is a clear distinction, not only conceptually but also temporally, between a phase of language-learning (where the agent acquires understanding of the concept expressed by the word (or, as Fodor has claimed, where the agent understands the link between the word and the concept)), and a phase of language-use. A competent speaker has complete knowledge of language and is in a position to use every sentence thereof.

Secondly, unless the formal semanticist embraces a sort of holism *à la* Davidson or a strong interpretation of the context principle,²⁷ his/her account cannot make

²⁷By holism *à la* Davidson I mean the following. Let us recall that for Davidson a theory of meaning must give an account of how the meanings of sentences depend upon the meanings of words (without conceiving of meanings as entities). At the same time, he claims that the meanings of words are subsidiary to the meanings of sentences, because words serve extra-linguistic activities “only in so far as the words are incorporated in (or on occasion happen to be) sentences [... Hence,] there is no chance of giving a foundational account of words before giving

room for knowing the truth value of sentences without knowing the meaning of its component words and expressions. But if one embraces holism *à la* Davidson or a strong interpretation of the context principle, knowing the meaning of words is reduced to knowledge of the combinatorial (syntactic and truth functional) properties of “w,” and of the truth value of (many) sentences that contain “w” and their logical relationships.

Thirdly, it seems that for the formal semanticist the important part of the epistemic task of the subject, or the only part worth modeling, consists in establishing epistemic relations to (already understood) sentences (e.g., to know the truth value of the sentence). This theoretical reconstruction of the epistemic task seems to leave room for claiming that to gain knowledge of the world consists in gaining knowledge of the truth value of a lot of sentences—or that this is the only relevant part of this process as far as the formal semanticist is concerned.

The conflict

There is a conflict between the above-mentioned assumptions made by the formal semanticist and the three observations based on incomplete understanding.

To begin with, there is a clear conflict between, on the one hand, the informal observation that, at least for some expressions, learning their meaning does not strictly precede the ability to use them to achieve certain purposes, and, on the other hand, the formal semanticist’s appeal to the concept of a competent speaker. For the competent speaker’s correct use of expressions is supposed to be partly caused by her knowledge of the meaning of these expressions, and this presupposes a strict distinction between a phase of language learning and a phase of language-use. The formal semanticist assumes that it is conceptually acceptable to study language just by focusing on this notion of a competent speaker. But by doing this he/she is going against our first criterion of adequacy, according to which the account should preserve our descriptions of our language-use in everyday life.

one of sentences” (Davidson, 1973, p. 127). These two commitments imply liability to a third one: that the specification of the meaning of a sentence cannot be given independently from the specification of the meaning of many sentences in the language. The word holism is obvious in the following sense: neither the meaning of a word nor the meaning of a sentence is specified independently of the meanings of all (or at least many other) sentences in the language are.

By the strong version of the context principle I mean that the meaning of an expression is the contribution it makes to the meaning of the sentences it can appear in.

The difference between holism *à la* Davidson and the strong version of the context principle is the following. According to the latter, only the compositional contribution to the meanings of sentences is relevant as far as the meaning of expressions is concerned. However, according to former, there are also connections between sentences that are relevant to the meaning of expressions, such as entailment. For instance, according to the former, the entailment between “John is a bachelor” and “John is not married” is constitutive of the meaning of “bachelor.” Hence, the sentence “John is not married” has to do with the meaning of “bachelor,” notwithstanding the fact that “bachelor” does not appear in it.

Moreover, the notion of a competent speaker also goes against the second criterion of adequacy, which consists in making distinctions only when they preserve our descriptions of language-use in everyday life. The informal observations entail that, at least for some expressions, there is no distinction between a phase of language learning and a phase of language-use. Hence, the notion of a competent speaker does not meet our criteria of adequacy.

Another conflict exists between the formal semanticist's assumption that knowledge of the truth value of a sentence depends on knowledge of its literal meaning, that is (when he/she does not embrace holism *à la* Davidson or a strong interpretation of the context principle). This formal semanticist accepts that one can know the literal meaning of a sentence without knowing its truth value, but not the other way around. The truth value of a sentence depends, according to the standard account, on the meaning of the sentence and the way the world is. Likewise, knowledge of the truth value of a sentence depends on knowledge of its meaning and of the way the world is. But there is the informal observation that, in the case of sentences that one can incompletely understand and use correctly in a situation to achieve certain purposes, one can know the truth value of related sentences without completely understanding them (because understanding a sentence depends, among other things, on understanding the words that it contains, and because one can incompletely understand one of these words). One cannot overlook this observation without going against our descriptions of our uses of language in everyday practices. That is to say, this assumption does not meet the first criterion of adequacy, according to which the account should preserve precisely these descriptions.

The informal observation that there are expressions that require practical knowledge in order to be understood shows that the formal semanticist's model of the epistemic task of the subject is not good enough—i.e., that at least there are important aspects of linguistic understanding that it does not model. For it seems that the only epistemic relation worth modeling on the part of the formal semanticist consists in knowledge of the truth value of sentences. But why, on the face of the informal observation, is practical knowledge not worth modeling? Why, for example, the agent's epistemic relation with the concepts of reading, giving back change, measuring, etc., must be reduced to knowledge of the truth value of sentences and their logical relations?

Likewise, if the formal semanticist embraces holism *à la* Davidson or the strong interpretation of the context principle, this model does not seem to be good enough on the face of words referring to (certain) practices the understanding of which requires practical knowledge. The formal semanticist's model of the epistemic task of the subject fails the first criterion of adequacy.

2.3 A descriptive view of communication

2.3.1 Against the code component of linguistic communication

In my criticism of formal semantics I presented an argument based on the idea of incomplete understanding. This idea consists in that our descriptions of language-use in everyday life—i.e., our descriptions of our experiences of, and our reactions to, our uses of language in everyday practices—are such that we often refrain from attributing complete understanding of some of the expressions used in the linguistic exchange to the speaker or to ourselves. One of the consequences of taking this idea seriously is that we require an account of communication that is different from what the formal semanticist has to offer. This shall be the topic of the remaining of this chapter.

Indeed, the idea of incomplete understanding is not compatible with the hybrid model of linguistic communication propounded by the formal semanticist. But where exactly lies this incompatibility? Let us briefly recall where the hybrid model comes from. The account of linguistic communication is based on an account of language and an account of communication. Language is conceived in terms of a set of rules that can be studied independently of people's uses of language. Communication is conceived as the interpretation of a communicative action. Thus, linguistic communication is conceived as the interpretation of a speech act (i.e., a particular kind of communicative action), and this interpretation requires knowledge of the rules of the language to which the uttered sentence belongs.²⁸

There are two interrelated presuppositions to this account. It is assumed that there is a determinate message that the speaker wants to convey to the hearer.²⁹ This message, in the analysis examined in chapter 1, is conceived as the content of an informative intention. An informative intention is the intention to inform that p , where p is a proposition or a semantic content. The speech act that intends to transmit this message is performed with a communicative intention, that is, the intention that the informative intention be recognized. The recognition is successful, among other things, if the hearer determines which proposition p is the content of the informative intention.

Moreover, it is assumed that the content of the message of a linguistic exchange (the proposition p), must be somehow 'in' the speaker (hearer). For instance, it is usually claimed that p must be the object of the speaker's intentional state. The

²⁸For a more detailed presentation of this model, see §1.3. For discussion, see §1.4.

²⁹See, for instance, Searle's well-known quote: "Human communication has some extraordinary properties, not shared by most other kinds of human behavior. One of the most extraordinary things is this: If I am trying to tell someone something, then (assuming certain conditions are satisfied) as soon as he recognizes that I am trying to tell him something and exactly what it is I am trying to tell him, I have succeeded in telling it to him" (Searle, 1969, p. 47).

account of communication is, or at least contains, an account of the transmission, or duplication, of this determinate message from the speaker to the hearer. That linguistic communication is successful then consists in that the message ‘in’ the hearer is the same as the message ‘in’ the speaker.³⁰

Now, although not every formal semanticist sees it in the same way, most of them agree that the role that language plays in communication can be characterized by the hybrid model of communication.³¹ The hybrid model, as its name indicates, is a combination of the code and the inferential models of communication. The hearer decodes the linguistic meaning of the uttered sentence, and on the basis of this meaning and some relevant factors of the context of utterance, she infers the content of the speaker’s communicative intention.

The linguistic meaning decoded by the hearer is the literal meaning of the sentence. Language is thus a code between signals (syntactic descriptions of sentences) and messages (literal meanings, constructed from semantic rules). In the hybrid model, this code is assumed to be shared between speaker and hearer prior to the linguistic exchange. The formal semanticist claims that this code, or at least its ‘structural’ aspect, is her object of study.

It is worth noting that if this code is shared between speaker and hearer, this means, among other things, that this code is somehow ‘in’ the speaker as well as ‘in’ the hearer. This assumption gives rise to the idea that semantics can be confined to the study of properties and abilities that can be ascribed to individual agents. This is what I have called in chapter 1 the formal semanticist’s commitment to the ‘individualist frame of reference’.

Now, according to the idea of incomplete understanding, it is not uncommon that people have incomplete understanding of many expressions that they successfully use in their linguistic exchanges. This shows not only that a person has partial, or limited understanding of many concepts, but also that this understanding is different from person to person.

Since this informal notion of understanding a concept, as well as the theoretical notion of knowledge of a linguistic code, aim at representing the same notion of linguistic meaning of words,³² we reach an incompatibility. For if the idea of incomplete understanding and the hybrid model are both correct, we should claim that it is not uncommon that people do not successfully communicate *with language*, since they do not share, before and after the exchange, the linguistic code. But is this claim acceptable?

³⁰See, e.g., Pagin (2008b) for a defense of this idea.

³¹For discussion, see §1.3.4.

³²A clarification remark is in order. The notion of linguistic understanding that features in the idea of incomplete understanding is primarily linked to words. Moreover, the notion of linguistic understanding as knowledge of the linguistic code requires knowledge of the lexical and structural meanings of words, as well as knowledge of the semantic rules of composition. Thus, both notions verse over representing the linguistic meaning of words.

In our everyday life linguistic communication is, more often than not, successful. In our day-to-day practices we talk to one another, chitchat, gossip, give speeches, read messages, journals, books, write emails, papers, love letters, etc., and we go about doing these things in a fluent way—or at least so it seems most of the time. Our everyday linguistic transactions go almost unnoticed.³³ Regardless of the fact that problems do sometimes arise, we seldom think that we could not communicate at all with someone, or understand at all a piece of text—unless she or it belongs to a linguistic community quite different from ours, but then she or it would not count as part of a day-to-day practice. Clearly, all these linguistic practices would not be fluent if linguistic communication were unsuccessful.³⁴

This is the incompatibility: linguistic communication is more often than not successful, but if the idea of incomplete understanding and the hybrid model are both correct, we should claim that it is not uncommon that linguistic communication is unsuccessful. This is a *reductio ad absurdum* from which we should conclude that the conjunction of the premises is false. Either we give up the idea of incomplete understanding or we give up the hybrid model of linguistic communication. Perhaps not surprisingly, I suggest we should give up the hybrid model.

I propose that we refrain from making a commitment to the claim that language is somehow ‘in’ the speaker or ‘in’ the hearer. For otherwise the very idea that an agent incompletely understands something that is ‘in’ her might easily lead us to all kinds of philosophical troubles. I propose that we do away with the commitment to the ‘individualistic frame of reference’. This means that the study of semantics, in particular, and of language, in general, must not be restricted to the study of properties that can be attributed to individual agents.³⁵ However, note that if we agree with this proposal, we are also doing away with the presupposition that a model of communication consists in transmitting, or duplicating, something from the speaker to the hearer: we need an entirely different model of communication.

I take it that the explanatory task of such alternative model of communication must be the following:

³³The fact that our everyday linguistic transactions go almost unnoticed shows that the present observation comes necessarily after reflexion about our linguistic practices. Perhaps surprisingly, it is an observation that is confirmed by our usual lack of attention to it, and thus we do not run into it on an everyday basis. It has to be prompted by an examination of how frequently we experience problems to communicate and how frequently we observe such problems in other people.

³⁴Consider the following quote from Peter Pagin: “[A] language wouldn’t be a good communicative device unless speakers of the same language standardly and reliably succeed in getting each other right when using it. And it wouldn’t be a good communicative device unless speakers, by common sense standards, had frequent evidence of success, in the form of ‘smoothness of conversation [. . .] frequent predictability of verbal and non-verbal reactions, and [. . .] coherence and plausibility of native testimony’, to borrow Quine’s phrase” (Pagin, 2008b, p. 107).

³⁵I will develop the outline of an alternative semantics along these lines in chapter 4.

1. It has to explain the observation that linguistic communication is more often than not successful.
2. It has to explain the observation that, when we successfully communicate, there is a theme that we share with our interlocutor.
3. It has to allow for successful communication despite incomplete, and uneven, understanding of words on the part of the participants.

I now turn to providing the outline of such an account.

2.3.2 Intentions vs. purposes

Given that the view on linguistic communication that we will put forth here has some similarities with the traditional account of communication (which goes back to Grice's (1957)), we might well start by contrasting the core elements of both proposals. In the case of the traditional account of communication the core element is that of a communicative *intention*; in the present account the core element is that of a *purpose*.

In the traditional account, communication is defined as an interaction between rational agents, and part of what is taken to define rationality is that the agent's rationality is a property of individual agents. Communicative actions, *qua* rational actions, are performed with an intention, and therefore, to interpret these actions is to recognize such an intention. An intention is conceived as an internal state of an individual that consists of a particular attitude (i.e., that of intending) directed towards a determinate content. A communicative action is characterized as an action performed with a communicative intention. The three main characteristics of this account of communication are: (i) communication requires recognition of a communicative intention; (ii) the intention has a determinate content; and (iii) intentions are internal properties. Hence, communication is either successful or not, since the content of the intention is either recognized or not.

Before we go on to list the main characteristics of what I shall call 'purposes', let us consider the following example. Suppose that John is in a classroom and that instead of paying attention to the lecture he is interchanging looks with Mary, a girl sitting not too far away from him. In fact, suppose that they have been doing this for a couple of lectures now so that John thinks that it is high time for him to do something about it. He writes down in a little piece of paper the following: "Coffee after the lecture?". He folds the paper and asks the person next to him with a gesture to pass it along from hand to hand until it reaches Mary, who has been observing the entire operation. Even before the paper reaches her hand, Mary may have a couple of ideas as to what John is up to by sending her such a piece of paper. Indeed, John's action can be described from different perspectives, some more direct than others, so to speak. We could say that the ultimate purpose of the exchange is company, intimacy, and sex, which is

a description of what John is up to by considering the innate attitudes that he has just because he is a human being. More directly, John's attitude can be described simply as his feeling up to hang out with Mary to feel the butterflies in the stomach, to have a nice time at dinner, at the movies, eating an ice cream, etc.³⁶ More immediately, John's attitude can be described as a request to go and grab a cup of coffee and get to know each other a bit more.³⁷ Finally, the most direct way to describe what John is up to with this little piece of paper is for Mary to take the paper in her hands and read it.

I wanted to bring out with this example the following characteristics of a purpose: (a) a purpose has a Janus-faced nature: it has innate as well as socially shaped aspects; (b) a purpose is not something determinate—it depends on how it is described and what counts as a recognition of it; and (c) some purposes are only achieved to some extent.³⁸

A very important aspect of purposes is that they have a Janus-faced nature: they can have both innate and socially shaped aspects. To gather food is a clear example of an innate purpose. To go to the supermarket to buy food has innate as well as socially shaped aspects. Another example of an innate purpose is to direct other people's attention to objects by pointing, eye gaze, or by manipulation of the object. To use words to direct people's attention has both an innate and a socially shaped aspect. To bond and create emotional strings with someone is an innate purpose. But without living in the culture that we live, we cannot have the purpose of saving some money to buy our partner an *iPod* for Christmas as a token of our love.

³⁶There is an innate aspect to this attitude, but it is actually more of a 'culturally shaped' one. For the most common things to do on a date depend a great deal on the culture, and are limited by the society—e.g., three hundred years ago people could not go to the movies or get an ice cream.

³⁷This description is also very conventional and depends a great deal on the cultural setting. Eight hundred years ago such a note with the inscription "Coffee after the lecture?" could not have been understood: there were no lectures, let alone coffees after lectures.

³⁸Another characteristic of purposes, not listed under (a)–(c) in the interest of brevity, is that a purpose can be individual or collective. For instance, an individual purpose is to win a casual game of chess. An example of a individual purpose that is also collective to a certain extent is my obtaining a PhD diploma. My supervisors, my family, and some people in my university can be said to share this purpose with me as well. And this is not just because they send me good thoughts. It is because if they did not do what they do, I could not obtain my PhD diploma, and because some of the things that they do are purposefully directed to my obtaining it. (To be sure, the relevance of these persons is different; some are more relevant for this purpose than others.) An example of a collective purpose is to win a football match. I take it that this is an inherent characteristic of purposes without requiring further analysis, given that I reject the 'individualistic frame of reference'. On the other hand, in the case of intentions, given their individualistic nature, the problem arises how to account of these attributions of purposes to a collectivity in terms of attributions of intentions to the individuals that make part to this collectivity. This problem has been called "the problem of collective intentionality" (see, e.g., Searle 1995).

A purpose is not something that you can have independently of where (and when) you have grown up (see fn. 36 and 37). Furthermore, which purpose someone has depends on the practices she is involved in. Consider another example. Suppose that “w” is an expression that refers to a practice p . Say p is the practice of preparing a cappuccino. Suppose that A wants the product of p , that is, a cappuccino, but she is familiar with p only to a limited extent because she is only familiar with its product. Suppose B is not familiar with p at all because she does not recognize the product nor is she able to do p . Clearly, they live in a society where there are people like C , who are completely familiar with practice p . Now, suppose A , B and C are familiar with the practice of addressing a word to someone to achieve a purpose, and that B is a subordinate of A . In order for A to obtain the product of p , she can address to B the expression “w!”. Then B goes to C and asks “w?” to obtain the product of p . That is, in order for A to enjoy a cappuccino, she can ask B for a cappuccino, who in turn can obtain one from C . When B asks “w?” to C , C can recognize B ’s purpose because C is familiar with two things: the practice of addressing a word to someone to achieve a purpose and with practice p . The interesting part of the story is that although B has been attributed the purpose of obtaining the product of p , i.e., a cappuccino, B is not familiar with it nor with the practice that produces it. Her purpose is socially shaped.

This claim is closely related to the idea of incomplete understanding. People with incomplete understanding of words that refer to products of practices can still have the purpose of obtaining these products. For example, suppose that you submit your documents to apply for a visa to The Netherlands (because you want to travel to this country to visit some friends). Your action is purposeful, but the purpose of this action is not defined by something in your head. For your understanding of a visa might well be incomplete, that is, you might well not know all there is to be known with regards to having a visa to The Netherlands (say, in terms of rights and duties, laws and international treaties with respect to visas in general and applying to this country in particular, etc.). However, your purpose is to apply for *this* visa, regardless of your ignorance of exactly what you are applying for.

A purpose can be described from different perspectives, which entails that there is no such thing as *the* purpose (defined independently of the sentences, signs and items used in the exchange) that both speaker and hearer must recognize (or possess) at the same time. Coming back to our example of preparing a cappuccino, note that C , by being familiar with the practice of preparing a cappuccino, can recognize the achievement of this practice by tasting the substance in her cup, or by checking the coffee machine, the ingredients used in the preparation, and the form of preparation. A can recognize the achievement of this practice by tasting what is in the cup that B gave to her, and finally, B can recognize the achievement by being confident that C gave her what she asked for, and by noticing the satisfaction in A ’s face when she receives and tastes the cappuccino.

Finally, sometimes it is very clear when a purpose was achieved, but other times the achievement is more of a matter of degree. Clear cases of achieving a purpose are when someone receives a PhD (there is a ceremony to commemorate the achievement), or when you buy an *ipod* for someone and she has it in her hands. On the other hand, the achievement of certain other purposes is less clear. For instance, to reduce poverty in a country is a purpose the achievement of which is a matter of degree, and the same can be said about the purpose of coming off as a confident person when you talk in public. You can point to improvements or deteriorations, but sometimes there is just no clear point where a purpose was achieved.

2.3.3 Communicative success

Linguistic communication is a very complex phenomenon. It can be explored from different perspectives (e.g., communicative actions, information transmission, conventions, communicative experience, language acquisition, human-machine interface, socio-linguistics, etc.) and for different purposes (e.g., to account for the notion of intersubjectivity, to study the relation between brain damage and language impairment, to study the physiological mechanisms that allow for speech and hearing, for software-building purposes, etc.). This complexity notwithstanding, I shall narrow down this phenomenon to a manageable size by restricting myself to a particular perspective. I take it that the concept that lies at the heart of linguistic communication is that of communicative success. In other words, I assume that to account for linguistic communication is to explain when and why communicative success occurs.³⁹ The concept of communicative success is related to the concepts of communicative action and understanding, and the idea is that communication is successful when the hearer understands the speaker's communicative action.

The gist of the descriptive view of communication is that, to some extent, every purposeful exchange between people by means of linguistic expressions is linguistic communication insofar as it can be considered successful.⁴⁰ The main requirement of this account, then, is to explain the conditions under which we normally call linguistic exchanges successful. There are two observations that

³⁹The ensuing discussion will lack an ingredient that is not only very dear to formal semanticians, but which indeed is of central importance for a general account of language, namely, the nature of the information carried by language. I will come back to the issue of the information carried by language in chapter 3.

⁴⁰A note on methodology: a champion of the descriptive view of linguistic communication does not conceive of her object of study as a natural kind, but as a social kind. Whether a particular linguistic exchange is successful or not is something that depends on our experiences and reactions to this exchange. Thus, the phenomenon must not be approached with the methodology of physics, but by bringing out the structure of our descriptions of our experiences and reactions to our linguistic exchanges. This is why the account is called "a descriptive view."

should lead the way, namely, that linguistic communication is successful most of the time, and that there are different standards of success.

The successfulness of a linguistic exchange, according to this account, is evaluated along two different axes: experiences of success and whether the purpose of the exchange was achieved. A few remarks to substantiate the connection between communicative success and each of these axes are in order.

Experiences of communicative success

It seems almost tautological that communication is successful when the hearer understands the speaker's communicative action. In turn, the hearer's understanding is internally related to her experience of a successful linguistic exchange. But it is perhaps more accurate to claim that her understanding is internally related to her lack of experience of a problem in the linguistic exchange. The 'lack' of experience is explained as follows. Given that most of the time we do not pay attention to language, but to what we, or our interlocutor, want to convey with language, the experience of communicative success is lack of experience of a problem to understand the speaker's communicative action.

Two clarifications are in order. First, it seems quite nonsensical to claim that communication can be successful regardless the experience of a problem with the linguistic exchange. Take the case of the hearer. Can we claim that the exchange between speaker and hearer is successful regardless of the experience, on the part of the hearer, of a problem with the exchange? Certainly not. Though the purposes of the exchange could be achieved by sheer luck, we do not feel inclined to say that communication was successful in this case.

Second, it is worth underscoring the radical change of perspective propounded here, as against mainstream theories of (linguistic) communication. Whereas the present approach relies on the mostly unreflective experiences that compose what we call communicative success (in everyday life), according to mainstream theories communicative success is something of an 'Eureka!' experience. For instance, according to one of Grice's proposals, wholeheartedly supported by Searle, communicative success consist in the hearer's recognition of the speaker's communicative intention. Such a recognition must consist in the hearer's realizing that the speaker has an informative intention with a particular content, and that she (the speaker) intends the hearer to recognize the informative intention. How does this reconstruction square with our almost never experiencing such recognition? When I discuss with someone about football, say by claiming that Real Madrid's coach, Jose Mourinho, is a better coach than Pep Guardiola, Barcelona's coach, regardless the better players in Barcelona's team, I am not first entertaining a proposition, wrapping it up with the intention to inform her about it, and, on top of it, wrapping it up with the intention for her to recognize the previous intention; and nor is she recognizing that. Our experiences are about football

teams, coaches, players, matches, etc.⁴¹ The view propounded here eschews such an over intellectualized picture by conceiving of (linguistic) communication as an embodied, embedded, mostly unreflective activity of human agents—by embodied I mean an activity that involves doing something with one’s body, and by embedded I mean an activity that is part of a larger framework of human activities and experiences.

Inasmuch as we are familiar with our language and culture, only seldom do we experience that a linguistic exchange is unsuccessful when this exchange takes place with another person familiar with our language and culture. Likewise, the less familiar we are with the means of the linguistic exchange, and the less we recognize the (culturally shaped) purpose of the exchange, the more will we experience a problem to understand the communicative action.⁴²

It is worth emphasizing that the hearer’s understanding *is not being reduced* to her experience of communicative success when we claim that the former is internally related to the latter. To understand someone’s communicative action is more of a relation than a particular experience. After all, we can go through such an experience and later on realize that we were mistaken because we did not understand the speaker’s point. However, that there are mistakes and misunderstandings is not a problem for claiming that there is an internal relation between the hearer’s understanding and her experience of communicative success. For this kind of relation is not meant to uncover necessary or sufficient conditions for two things to obtain together. The gist of an internal relation is rather that we cannot conceptualize one thing without conceptualizing the other. In normal circumstances, not to have an experience of success amounts to failure of communication, and to have an experience of communicative success (or lack of experience of a problem) constitutes the successfulness of the exchange. But what the normal circumstances are is determined by more factors than the mere occurrence of such an experience, and it is precisely a discussion of the two axes of the degrees of communicative success that addresses this point.

⁴¹Inasmuch as “intention” means a conscious and reflective experience with the purpose of reaching a particular goal, we do not very often entertain intentions about intentions in our everyday linguistic exchanges. Moreover, is it adequate to defend such an over intellectualized reconstruction by claiming that one thing is our reconstruction and another is our experience of communicative success? But then again, what is it a reconstruction of? How do we go authenticating the adequacy of such a reconstruction?

⁴²The experience of a problem with communication comes in different flavors, but mainly in terms of discomfort, exasperation, and maybe a certain amount of anguish. Think of situations in which a subordinate fails to understand what we want from him (or, vice versa, when we do not understand what our boss wants from us), or of how awkward it seems to communicate in a country the language of which we only master to a limited extent. To be sure, there are other aspects to this experience, but for our present purposes only this rough characterization will suffice.

Achievement of purposes

Only very rarely does a linguistic exchange serve no purpose. We human beings are purposeful agents, and our actions are usually made for a purpose.⁴³ Moreover, if the purposiveness of an exchange is not taken into account, we seem to lack descriptive elements to assess whether a linguistic exchange is successful or not; successfulness would be only stipulated as a relation between a message ‘in’ the speaker and a message ‘in’ the hearer, but we would be unable to monitor this relation as we go about our day-to-day activities.

This does not mean that the successfulness of an exchange must be defined in terms of behavioral criteria. Or that the achievement of the purposes of the exchange must be so defined. More often, a purpose can only be defined by means of a sentence that the participants agree to be the one that determines the purpose of the exchange. What remains is our experiences that the purpose was achieved or not, as well as our reactions, in terms of doings and sayings, to these experiences. For instance, I can have a linguistic exchange with my brother to convince him that a Peugeot is the best choice if he were to buy a car. The successfulness of this exchange need not be my brother’s buying a Peugeot. Instead, it can consist in that my brother would say that the best choice to buy a car is a Peugeot, if he were to buy one.

Many purposes associated with the exchange are not achieved immediately after the exchange. Our experience of the exchange is linked to the fulfillment of more direct purposes. More indirect purposes are monitored, so to speak, via some evidence that the purpose is going to be achieved (whether this is so or not in the end). This evidence should suggest that the purpose of the exchange was clear, and that its fulfillment is suspended for the time being, or that it is underway.

What we observe is that the participants in the exchange take familiar steps that usually lead to the achievement of those indirect purposes, or at least they take steps that show that the purpose is clear. Hence, I will coin the term of “going along with the practice” to refer to this experience that things seem right, that so far so good, since it seems that a particular indirect purpose is at least clear, and that is going to be achieved. I contend that this is what we experience most of the time in communication and, furthermore, that most of the time, as a matter of fact, many direct and mediate purposes are achieved. This is why linguistic communication seems to us successful most of the time.

⁴³Human beings have an innate ability to recognize purposeful actions. This capacity is manifest in young children’s dispositions to discriminate events where a person is doing something purposefully (with the “attitude of intending”), from events where something just happens to the person (by chance or without her paying attention).

Structure of our descriptions

The two axes of degrees of successfulness allow us to distinguish different situations where we have different descriptions of communicative success. There are four main situations represented by each of the four regions determined when we plot these two axes by means of a 2×2 table:

		<i>Experience</i>	
		Successful	Unsuccessful
<i>Purposes</i>	Achieved	A	B
	Not achieved	C	D

Region A represents situations where the hearer experiences that she understood the speaker's communicative action (or better, where she did not experience any problem with the speaker's communicative action), and where we would judge (from the perspective of the speaker, the hearer, a third party, or from all of the above), if asked to reflect about it, that the purpose of the exchange was achieved or that it is underway, or at least that it was clear for both parties in the exchange.⁴⁴ Situations like these characterize the highest degree of communicative success.

By contrast, region D represents situations where the hearer experiences problems in the exchange and where the purpose of the exchange was not achieved (from any point of view). Situations like these characterize the lowest degree of communicative success.

Region C represents situations where communicative success is not clear. On the one hand, the hearer does not experience any problem to understand the speaker's communicative action, but, on the other hand, she or her interlocutor think that the purpose of the exchange was not achieved, or she thinks that the speaker had a different purpose in mind than she had previously thought. This disparity—i.e., that there is experience of success but the purpose was not achieved—must be seen from after the actual linguistic exchange, since during the exchange all went apparently right—this is why the experience is that of success. It is only when the participants, or just one of them, looks back and reflects about the exchange, that it is deemed that the purpose was not achieved. Situations like these are cases where the hearer recognizes that the speaker was lying, or that one (or all) of the participants in the exchange was mistaken about the object of the exchange, and so on.

Situations like those in region B are lived situations of discontent, such as when one is trying to find the right word to use in a conversation. The struggle to find the right way of expressing oneself need not get in the way of achieving

⁴⁴A linguistic exchange usually has more than one purpose, and they are not all necessarily the same for every participant. The recognition of this is what leads to the conclusion that there are different standards of communicative success, which depend on the purpose against which the exchange is being assessed.

the purposes of the exchange, but the feeling that the exchange could go better is very present. When this situation is recalled afterwards, we might say that we obtained what we wanted, and we might remember the discomfort and the motivation to perform better. Some cases of language learning (specially a second language) are characteristic of this region.

2.3.4 Fulfilling the explanatory task

Linguistic communication is more often successful

In our everyday life, linguistic communication is more often than not successful. The factors on which descriptions of communicative success depend are usually present in our day-to-day linguistic exchanges. That is, in everyday life: (a) there is familiarity with the means used in the exchanges; (b) the purposes are usually recognized (note that (a) and (b) account for the axis of the experience of success); and (c) the purposes of the exchange are usually achieved.

We must start with a principled problem that the present account faces to show the intended claim that the factors on which descriptions of communicative success depend are usually present in our day-to-day linguistic exchanges. For the present work is a conceptual undertaking, whereas the claim is an empirical statement. Hence, the most that can be aimed at here is to provide good reasons that the claim is true.

To show that (a) is the case, that is, that in everyday practices there is familiarity with the means (i.e., words and sentences) used in the exchanges, we might consider that our experiences with signs change with past experience. For instance, it is almost impossible not to recognize a word-token as a meaningful symbol once one is familiar with the word-type. If one overhears a conversation in one's mother tongue, one cannot help but recognize the words used. By being socially shaped—i.e., by being introduced as a participant in social practices, such as by interacting with the caretaker, by being educated at school or college, by becoming a citizen, etc.—, people become familiar with words and expressions that are used in their day-to-day activities.

To show that (b) is the case, that is, that the purposes of everyday practices are usually recognized, we need to say a few words about recognition of purposes and familiarity thereof. The speaker's purpose is constituted by her having the "attitude of intending," by her using the sentence that she uses, by being already involved in a practice in which the linguistic exchange fits, and by making part of the cultural environment that she lives in. The speaker's recognition of the purpose of her communicative action consists in her intending the action of uttering a particular sentence, and by being familiar with the situation in which the sentence will be uttered and by intending (some of) the consequences of her uttering that sentence. The hearer's recognition of the purpose of the linguistic

exchange is based on her familiarity with the sentence uttered by the speaker, with the practices that the speaker is already involved in, and with hers and the speaker's common cultural environment. In the case of day-to-day practices, these conditions for recognition of purposes are met in the case of both speaker and hearer.

Finally, to show that (c) is the case, the claim that the purposes of the exchange are usually achieved is supported by two observations. First, there is a close relationship between failing to achieve a purpose and experiencing a problem with the action that was purposefully addressed to achieve a purpose. Moreover, we seldom experience a problem when we have linguistic exchanges in our everyday life. Second, to be familiar with practices means that one possesses the necessary skills to warrant a high rate of success to perform these practices. We are familiar with day-to-day practices, which means that the purposes of these practices in which we are involved in everyday life are normally achieved.

There is a theme that we share with our interlocutor

The second point in the explanatory task is that when we successfully communicate, there is a theme that we share. When you say that Barack Obama should not have won the Nobel price of peace and I say that you are wrong, we would nevertheless agree, if asked and reflect about it, that we are talking about the same person and the same price; that we share a theme about which we have conflicting opinions. Now, the line of thought developed here is that philosophical difficulties arise when we try and provide a metaphysical analysis of the theme that we share in a conversation. To avoid these difficulties, we might as well refrain from reifying the theme and claim that it is not real; it is not an object that can be located in any realm.

According to my rejection of an 'individualistic frame of reference', I will argue that there really is no theme that is shared in a conversation. Hence, if there really is no theme that we share, why does it seem like we actually do? I still need to show why our descriptions of successful communication include such a theme. The answer to this question will be that it is relevant that the participants of a linguistic exchange 'assume' (though usually in an unreflective way) that they do share a determinate theme.⁴⁵ That is, in order to explain our descriptions of our

⁴⁵There are notable similarities between the idea of a phenomenological experience, according to which we assume that we share the sentence's content with our interlocutor, on the one hand, and what Stenning and van Lambalgen (2008) call a *credulous interpretation*, on the other hand. According to these authors, people can interpret a discourse by taking (at least) two stances: credulous and skeptical. A credulous stance is such that, "[a]s we interpret the discourse, we take our task to be to construct a model of the [discourse] which is the same as the speaker's 'intended model', and we assume that we are to use whatever general and specific knowledge we have, including the assumption that the speaker is being cooperative in constructing her discourse, to help us guess which model this is" (p. 22). As opposed to this, a skeptical stance is one "in which we do not use any information save the explicitly stated premises, and we are to

experience of a shared theme we do not need to show that it is literally true. It is enough to show why people have such an experience.⁴⁶

The participants of a linguistic exchange assume that they share the content of the sentence to assume a standard, and to assume that they know the standard, so that their practices are carried out.⁴⁷ We can illustrate this point by means of an example. Suppose that *A* tells *B*: “You have to give me 3 Euros for each cappuccino that I sell to you; I’ve sold twenty cappuccinos to you; how many Euros should you give me?” *B* answers: “60 Euros.”

As far as this short exchange goes, *A* and *B* can take for granted that they agree. This means that they take the sentence “60 Euros” to mean the same, that

entertain all possible arrangements of the entities that make these statements true” (ibid.). We must bear in mind that a model of a discourse, as it is conceived in Stenning and van Lambalgen (2008), is a model that makes true all sentences in the discourse and that is partial with respect to a universe or domain of reference (in some cases, this universe is assumed to be the ‘real world’). The partiality of the model of the discourse is what helps make sense of the idea of “constructing a model.” The main point of similarity between my idea of a phenomenological experience and Stenning’s and van Lambalgen’s credulous interpretation is that the hearer assumes that she is constructing *the* model intended by the speaker, that is to say, that the hearer assumes that she shares with the speaker the model that the latter is constructing with her discourse. The main difference is that a credulous interpretation goes further than the phenomenological experience does by prescribing what kind of information can be appealed to in the construction of the model. The phenomenological experience, on the other hand, just consists of the (conscious though not necessarily reflective) assumption of a shared model, or content. Furthermore, insofar as the hearer, by taking the *skeptical* stance, assumes (consciously though not necessarily reflectively) that there is already a determinate information, meager as it may be—i.e., only the information explicitly stated in the premises—, that is shared between speaker and hearer, the hearer is already having the phenomenological experience of a shared content. Thus, credulous and skeptical stances seem to differ just with respect to the amount of information that is assumed to be shared between hearer and speaker. In the former case, a ‘big’ model of the discourse is assumed, whereas in the latter case only the information necessary to determine “all possible arrangements of the entities that make [the discourse] true” is assumed. However, the fact that the hearer obtains this information from the speaker’s discourse cannot but depend on, *pace* Stenning’s and van Lambalgen’s purposes, knowledge of an independently established meaning of these premises that hearer and speaker must already share. If we assume that this information is precluded from conscious (and unreflective) thought, and that a model of the discourse cannot but be part of conscious thought, there is a similarity between having or not a phenomenological experience of shared content, on the one hand, and credulous vs. skeptical interpretation, on the other. However, it is worth bearing in mind that the former is supposed to leave open the possibility that there is no content or meaning that hearer and speaker, as a matter of fact, share, whereas the latter seems to assume, at least implicitly, that the information as to what possible arrangements make the premises true is shared.

⁴⁶A word of caution is in order. I do not intend to show that it is necessary to make such an assumption, but to show that it is good, or advantageous, to make it as far as our everyday practices are concerned, and that this is the reason why humans possess the ability to make such an ‘assumption’.

⁴⁷It is not altogether clear to me at this point how to explain the notions of “assumption” and “knowledge” as they feature in unreflective actions of our everyday practices. This shall remain as a topic for further investigation.

is, they assume a standard and they assume that they know it. They experience that “60 Euros” refers to an object and that they share this object.

When the agreement finds resistance, maybe because *B* only gives *A* 50 Euros, the supposition that they share the object referred to by “60 Euros” starts to lose its ground. When this happens, *A* and *B* try to coordinate what they mean by “60,” or “3,” “20,” “to give x for each unit,” etc. Inasmuch as the agreement finds more and more resistance, *A* (or *B* for that matter) tends not to experience that she is sharing and object with her interlocutor.

The value of the assumption that an object is shared in the exchange is the following: (i) people do not need to coordinate all their practices (in the example, *A* and *B* only coordinate multiplication and assume that they can count, recognize bills, etc., in the same way); (ii) communication is thereby optimized; (iii) practices can be nested on other practices without consuming too much ‘cognitive space’; (iv) problems are easily localized in a particular practice (that is, the relevant point of the example is not whether *B* can count bills or add up to 60, but to know whether *B* can multiply).

If the previous paragraphs give a compelling explanation of the fact that people experience communication as an event where they share the content of the sentence, we can draw a number of consequences. First, in a linguistic exchange, only local similarities/differences can be relevant for the exchange—only local discrepancies can be ‘experienced’, since many other agreements and similarities are assumed. Second, that the purpose of the exchange is achieved depends in the end in the real agreement in practices of the participants (though they do not need to agree in all of their practices, as we shall see in a moment). For instance, that *A* in the end receives 60 Euros depends on *B* being able to count bills and add up to 60, and this in turn depends on *A* and *B* being able to recognize pieces of paper as bills, etc.⁴⁸

Another important consequence is that, given the characteristics of everyday practices, the purposes of linguistic exchanges can be achieved despite the participant’s different degrees of familiarity with practices. For instance, the captain of an airplane can tell the flight engineer: “Diagnose the communication systems!” The captain has indirect ways to know whether the flight engineer carried out the diagnose, but he does not (usually) know how to do the diagnose himself. Thus, if captain and flight engineer were to conduct a further coordination of practices, they will not succeed given their different degree of familiarity with this particular practice. It is because the flight engineer does not bother to question whether the captain knows the standard in question, and because he himself knows this standard and is able to live up to it, that he understands what the captain wants him to do. For as long as the purposes of the exchange are achieved, which de-

⁴⁸This point seems to fit in well with Davidson’s (1974) idea that interpretation can only occur against the background of massive agreement. However, in this paragraph I am assuming agreement not in believes, but in assumptions and, more importantly, practices.

depends on each participant carrying out her own role within the shared practice, no problem will be experienced either by the captain or the flight engineer. This point is a key ingredient of the explanation of successful communication despite incomplete understanding.

Successful communication with incomplete understanding

An explanation of successful communication despite incomplete understanding is straightforward in the account of communication developed here. It suffices to show that the two axes of communicative success are usually in region A even though people have uneven and incomplete understanding of some expressions used in their exchanges.

Recall that region A is such that there is no experience of a problem in the linguistic exchange, and the purposes of the exchange are achieved. In the above-mentioned example of the captain and the flight engineer (see also the example of the cappuccino) the purposes of the exchange can be achieved despite the captain's incomplete understanding of the expression that he uses. Since he is (more or less) able to determine whether the diagnose of all communication systems was successfully achieved, he is assuming a standard of success and is able to 'monitor' it. Moreover, given that the flight engineer knows how to carry out such a diagnose, he will not show any sign of discomfort or hesitancy. They will both lack any experience of a problem in their communication. The purpose will be achieved since the flight engineer will usually carry out his job (if not immediately, he will usually show that he will do it later), and the captain will be (more or less) able to verify this job.

The line of thought developed in this chapter turns around two conflicting perspectives on language, linguistic understanding, and linguistic communication. The assesment of these perspectives starts from the observation that the 'facts' that make up our 'human world', which are expressed by our language and our symbolic means in general, not only consist of 'facts' such as "dogs are mammals," "John whistles," "this is water," etc.; there are also other 'facts' that permeate our everyday life, which are based on our uses of language and signs in general: "I can legally work in the Netherlands," "you are 'it'," "Ronaldinho has gotten a yellow card," etc. These 'facts' are (partly) constituted by our uses of language and signs in general, and hence to understand the expressions that 'refer' to them requires to understand these uses of language and signs in general. As a consequence, the measuring rod with which theoretical accounts of language, understanding, and communication are to be assessed stipulates that our descriptions of our experiences of language-use in everyday life must be preserved. These descriptions are our only way to gain 'access' to the phenomena that gives rise to 'facts' of the latter kind.

Perhaps not surprisingly, I present two arguments to the effect of showing that the formal semanticist's account must be ruled out, as it does not meet the above-mentioned criteria of adequacy. The gist of the first argument is that the notion of linguistic competence put forth by the formal semantics in order to explain the 'facts' about language and linguistic competence (i.e., systematicity, the infinity of language, and productivity) are not sound, given that these are not legitimate facts to be explained in the first place, and that we cannot postulate their existence without going against our descriptions of our experiences of language-use in everyday life. As the criticism develops, the outline of an alternative notion of linguistic competence starts to emerge: linguistic understanding is more of an embodied ability to deal with linguistic signs within everyday practices. The gist of the second criticism is that our descriptions of experiences of language-use in everyday life point out that, by and large, the speakers of a language have incomplete understanding of many words that they nevertheless successfully use. Some perspicuous observations about situations of language-use show that the achievement of purposes depends on extra-linguistic abilities that need not belong to the same agent. An agent can have some abilities to use signs in order to achieve purposes, but the achievement of these purposes occurs, at least some times, thanks to another agent's extra-linguistic abilities. All the while, however, these signs can be said to carry the same information for both agents. Thus, the information carried by signs transcends the 'individualistic frame of reference', which is an issue that still stands in need of further clarification. In my view, however, the most pressing problem is that the traditional models of linguistic communication are no longer tenable. If information is not 'in' the agents, the model of communication as transmission of information must give its way to a radically different one.

The "descriptive view of communication," as I have called it, is devised to explain the notion of communicative success. There is communicative success when the hearer understands the speaker's communicative action. In agreement with the previously suggested idea of linguistic understanding as an embodied and embedded ability, communicative success is not conceptualized as a merely intellectual ability: we usually do not reflect about our communicative success. The factors on which such a notion depends are our experiences of communicative success and the achievement of the purposes of the exchange. We usually 'go along with the practices' in which we are engaged, and our actions usually succeed. Many of these actions involve the use of signs (e.g., speech, writing, etc.), but it also involves other people that, like us, are familiar with the purposes of the uses of these signs. The successfulness of these actions turn out to depend, it is suggested, on the agents' experiences with these signs and their reactions to these experiences.

In the foregoing we have rejected the dominant rule-based approach to language and linguistic information, and we are left with the task of accounting for an embodied and embedded ability to use signs in our everyday life, and to provide

a framework with which we can explain how the information carried by words can transcend the individualistic frame of reference. Thus, we need to look for insights from alternative approaches to language and linguistic information. In the next chapter I take up the task of reviewing two such alternative approaches, namely, Tomasello's usage-based account of language and Brandom's pragmatic inferentialism.