

Contexts in philosophy: pragmatic competence as filter

Les contextes en philosophie : la compétence pragmatique comme filtre

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RÉSUMÉ. Ce papier tente de connecter des préoccupations dans la philosophie du langage avec des vues traditionnelles en Intelligence Artificielle. Après une courte introduction sur la notion de contexte en Philosophie (§1), je pars de l'inventeur de la logique mathématique, Gottlob Frege pour présenter trois débats dans la philosophie du langage où la solution est fortement indécidée : (§2) le débat sur l'holisme, (§3) le débat sur les frontières entre sémantique et pragmatique, et (§4) le débat entre les vues explicites et implicites de descriptions incomplètes. Ces débats peuvent être considérés comme des études de cas sur ce qui est arrivé à la notion de contexte en Philosophie dans les deux premières décades du XXI^{ème} siècle ; ils nous poussent à chercher un cadre unifiée pour cadrer les soucis dont nous discutons : je propose de déplacer l'attention vers une représentation des capacités élémentaires qui sont requises pour naviguer à travers les contextes (§5). Je conclus en faisant quelques suggestions issues des Sciences de l'Informatique pour contribuer à une meilleure définition de la signification de « compétence pragmatique » dans le cadre d'une entreprise philosophique (§6).

ABSTRACT. This programmatic paper is an attempt to connect some worries in the philosophy of language with some traditional views in artificial intelligence. After a short introduction to the notion of context in philosophy (§1), starting from the inventor of mathematical logic, Gottlob Frege, I list three debates in the philosophy of language where the solution is strongly undecided: §2 treats the debate between holism and molecularism; §3 describes the debate on the boundaries between semantics and pragmatics; §4 hints at a solution of the debate between explicit and implicit view of incomplete descriptions. These debates may be considered case studies on what is happening to the notion of context in philosophy in the first two decades of XXI century; they push us to look for a unifying framework in which to frame those worries: I propose to shift the attention towards a representation of the basic abilities required to navigate across contexts (§5). In the conclusion, I use some suggestions from computer sciences as a contribution towards a better definition of what is meant by "pragmatic competence", strictly connected to the philosophical enterprise (§6).

MOTS-CLÉS. Indexicals, signification, sous-détermination, compétence pragmatique, frontières sémantiques-pragmatiques.

KEYWORDS. Indexicals, meaning - underdetermination, pragmatic competence, semantic-pragmatics boundaries.

1. Varieties of contexts in philosophy

Philosophers developed a strong interest on the topic of context¹ since Frege's work on the foundation of mathematical logic. Dummett [36] invented the term "context-principle" to tag the Fregean principle presented in his *Grundlagen der Arithmetik*:

(1) "Never to ask for the meaning of a word in isolation, but only in the context of a sentence"
[46: p. xxii]

The idea of context is that of being connected or "staying together" ("*zusammenhang*"). Frege's proposal was an expression of his anti-psychologistic stance against the identification of meaning with "ideas", a view traditionally shared by empiricists and rationalists. John Locke, in the *Essay on Human understanding*, claims that the meaning of a word is the idea in the mind to which the word corresponds.² Certainly, Locke had a very important predecessor: according to Aristotle words are "signs of the movement of the mind": they don't signify objects, but ideas in the mind (Aristotle: *De interpretatione*). Frege thought that Locke's mistake was to look for the meaning of a word in isolation and proposed two arguments against the traditional view: (i) for many words there are no corresponding ideas, and the only way to understand or define the meaning of a word is to study how it works in the context of a sentence; (ii) different people may connect different ideas with the same

¹ In this section I develop what was presented in [100]

² Christopher Gauker gives a general criticism of Locke's expressivist view of meaning in [49].

words. Locke thought that the habit of using words would help go beyond misunderstandings. Frege required something more open to view: the study of the behaviour of words in the context of sentences. A first notorious application of these ideas is the individuation of the problem (and the first attempted solution) of indirect contexts (contexts like “John says/believes/knows that p ”), where general principles of substitutivity and compositionality seem to fail.³

A second suggestion came from Frege’s worries about aspects of natural language that go beyond the mere linguistic expression; working in mathematics we work on expressions (e.g. numerals) that always refer to the same objects (e.g. numbers). On the contrary, in everyday speech, expressions like “I”, “today”, “yesterday”, “this”, “that”, “here”, “there” require the knowledge of the surrounding circumstances in order to understand the object to which we refer:

(2) «The mere wording, as it can be written down, is not the complete expression of the thought; the knowledge of certain circumstances accompanying the utterance, which are used as means of expressing the thought, is needed for us to grasp the thought correctly. Pointing the finger, hand gestures, glances may belong here too. The same verbal expression of the word “I” will express different thoughts in the mouths of different men, of which some may be true, others false» [48: p. 64]

Expressions like “I” or “here” or “now” are “context-dependent”, and in this quotation Frege actually refers to the context of utterance as distinguished by the linguistic context of a sentence.

A third suggestion came from a side remark on the difficulties of natural language where we have expressions that can be empty if they do not refer to any existing object. Frege suggested that when we use a definite description in natural language we *presuppose* the existence of the individual defined by the description. Here the truth conditions of a sentence do not depend on the objective context of utterance, but on a shared agreement on presuppositions triggered by features of natural language like the definite article used to build definite descriptions like “the inventor of bifocals”, “the President of US”, descriptions that Frege called “composed proper names”. As Frege said:

(3) «When we make an assertion, we give it for presupposed that the simple or composed proper name has a reference» [47]⁴

These three ideas have been the source of different concepts of context, often overlapping each other:

- (1) linguistic context
- (2) utterance context
- (3) cognitive context.

This three-partition is not exhaustive, but may help to find a way in the web of definitions of context (Patrick Brézillon [18] refers to 250 different definitions of context found in the web). *Linguistic context* or co-text is mainly studied by linguists and concerns phenomena like discourse, anaphora, quotation, indirect report, and so on. *Context of utterance* is just a specific piece of what is normally called “social context”⁵ or situation or non-linguistic context; “context of utterance” is typically used to indirectly refer to the specific situation in which an utterance (a piece of a speech) is made and it is constituted by a list of the parameters necessary to interpret certain kinds of words. *Cognitive context* concerns the cognitive dimensions of beliefs, chunks of knowledge, assumptions, and is it sometimes referred to as “mental space” [41]; there is both an individual and a collective view of cognitive

³ See Penco [88].

⁴ Frege used “proper names” as a general word for expressions referring to an individual, included definite descriptions.

⁵ Although “social context” is a wider general concept encompassing objects, actions, beliefs, institutions and everything you like.

context. In what follows we give some definitions used by philosophers following the path opened by Frege's remarks.

Having devoted much research on Frege's philosophical work, I became more and more aware how many Fregean suggestions lie below the surface of most debates on the concept of context and it may be of interest to keep in mind the original source (see [86, 90, 93, 95, 96]). But this is not the place to deepen this matter of history of ideas and in the following I will shortly present some alternatives on the role of context in three contemporary debates. But first I will give a short reminder to some of the main ways of treating the notion of context in philosophy of language after Frege, mainly concerning the notions (2) and (3). Notion (1) of linguistic context has been developed in linguistics in different theoretical settings that share a notion of "discourse context" (or "co-text"), and in Philosophy has raised many problems on the relations between sentences in indirect discourse (on Frege's perspective, see Kripke [65]).

The second Fregean idea (2) concerns the context in which an utterance is produced by a speaker (generally with an audience) and has been typically defined as a set of parameters: time, location, speaker and possible world⁶ $\langle t, l, s, w \rangle$. With his logic of demonstratives David Kaplan [60] had the great merit to introduce the double index (circumstances of evaluation and context of utterance) to treat indexicals in the logic tradition of Tarski, Carnap and Reichenbach. Expressions like personal pronouns ("I", "you", "she", "we"...), adverbs ("here", "there", "now"...), or demonstratives ("this", "that",...) have in common the property to have a fixed meaning, but what they refer to changes depending on the context of utterance ("I" refers to those speakers who use the pronoun, "you" refers to the different addressee, and so on). They are collectively called "indexicals", and represent the clearer case of context dependence. "I", "here" and "now" have the particular property to refer *automatically*, independently of the particular intention of the speaker and are called "pure indexicals".⁷ "I am here now" expresses a contingent proposition that is not necessarily true, but it is true in all contexts of utterance. We will say that the sentence will be true at all contexts, but not in all circumstances of evaluation, that is a possible situation relative to which we evaluate whether the individual exists or the relevant property (in this case to be in a place at a time) is instantiated.

The notion of context of utterance raised a series of worries, starting with David Lewis [68: pp. 85-86] according to whom we may put in the context everything that shifts, therefore not only time, location and speaker, but also audience, shared beliefs, standards of precision, states of mind, presuppositions. John Perry [63, 101, 103] distinguishes "narrow context" as the parameters of time, location and speaker sufficient for interpreting pure indexicals ("I", "here", "now") and "wide context" including other aspects like presuppositions, gestures or other sources of information, for interpreting other indexicals⁸. Kaplan's theory of indexicals has become a "standard" in semantic analysis and had survived all challenges received so far, but Kaplan's context is not the only context on the market.

⁶ Possible world semantics originated by Kripke assumes different possible states of the world on which a sentence may be evaluated. A possible world is needed also in the context of utterance for the "double index" theory, where a sentence is evaluated at a context and in a circumstance of evaluation. The world of the context of utterance may be different from the possible world of the circumstance of evaluation. For instance, "I am here now" is a sentence that is true in all contexts of utterance, but not at all possible worlds.

⁷ A particular property of the sentence "I am here now" is the following: it is true at all contexts of utterances, and therefore it is considered a case of analytic truth, that is true in virtue of meaning, as suggested by Gillian Russell [109]); but it is not true in all possible worlds (it is a contingent sentence, because I could have been elsewhere).

⁸ Historical Remark: JohanVan Benthem suggested John Perry and John McCarthy to better define their respective notions of context: McCarthy [72, 73] and Perry [102] can be considered two parallel efforts to show different viewpoints on context from artificial intelligence and philosophy. For Perry [101] "narrow context" means the smaller set of parameters needed to interpret "pure indexicals" ("I", "now", "here"). I suggest that, for McCarthy [73], a narrow context, although not strictly defined, is always relative to a wider context where the narrow context can be "lifted". Therefore, also Perry's narrow context can be considered a McCarthy's context that can be lifted in a wider context, where the basic parameters are enriched by further parameters. See later on McCarthy's notion of context.

The Fregean idea of presupposition (3) has been widely discussed until a new concept and a new framework of pragmatic presupposition emerged with the idea of context as the set of all presuppositions shared by the participants to a conversation: the “common ground” (Stalnaker [114, 115, 116]) is the background information that is taken for granted in a conversation. On this paradigm, under the idea of dynamic semantics, and in particular of update semantics proposed by Irene Heim [58], the meaning of a sentence is defined as *context change potential*, which is the capacity of changing the common ground (either restricting the set of possible worlds by giving a new information, or challenging the common ground with an information contrasting with some presupposed content). For instance, if I say “my sister stopped smoking” the participants to the conversation will update their beliefs to accommodate the new information presupposed by the sentence (if not yet present in the cognitive context), that is: I have a sister and my sister used to smoke. Therefore, they will exclude from the common grounds the possible worlds in which I have no sister or in which my sister never used to smoke; and any new information will restrict the set of possible worlds available to the hearers – in other words the common ground becomes more and more specific, depending on new information coming into the context of discourse.

Although there is a contrast between Kaplan’s narrow context and Stalnaker’s cognitive context, the background logical assumptions are both connected with model-theoretic semantics (possible worlds semantics). What changes is the perspective: on the one hand, we have Kaplan’s point of view of semantics as abstracting from the cognitive perspective and giving a metaphysical “view from above” about the truth of the matter, independently of the agent’s perspective⁹; on the other hand, works in Stalnaker’s tradition take into account the different perspectives of different speakers.¹⁰

Saul Kripke [66] makes a distinction between “salient” or “active” context and “passive context”. To me this distinction helps distinguishing on the one hand the original idea of “common ground”, which seems a kind of passive general context as the set of shared beliefs we may be not actually aware of, and on the other hand the idea, developed by Christopher Gauker [50], for whom we need to define a “normative context” as the set of specific presuppositions needed to understand a specific conversation. Kripke’s definition does not enter in the debate between Gauker and Stalnaker, but we certainly need to make a clear distinction between a descriptive aspect of cognitive context (what people actually share) and normative aspect of cognitive context (what people should share to understand a conversation). Here, experimental pragmatics might help in understanding and evaluating descriptive and normative theories of cognitive context (see Domaneschi *et al.* [30, 31, 32]).

In the following, I will trace the main lines of three contemporary debates centred on the notion of context. First, I will treat the general idea of generalizing Frege’s context principle to the entire language, with the Davidsonian view of semantic holism. Then I will hint at the discussion on the boundaries between semantics and pragmatics that took the main attention of philosophers and linguists in the last two decades. A particular worry inside this debate concerns a specific topic in linguistics and philosophy of language, the topic of definite description: this will be our third case study. After a presentation of these three debates, I will try to give an indication of a framework in which these worries could be usefully framed.

⁹ See for instance Kaplan [61]; for a criticism see Penco [97].

¹⁰ Stalnaker [115] insists that “a number of ways in which what is presupposed may diverge from what is mutually known or believed”. Indeed, we may presuppose something not only by believing it, but also by making a temporarily assumption, presuming that things are mutually believed although they are not, or even pretending things are mutually believed when we know they are not. Domaneschi *et al.* [31] give some empirical result of these different attitudes connected to presuppositions. Penco [85] makes an analogous contrast between a metaphysical and a cognitive point of view exemplified by David Kaplan and John McCarthy, with the suggestion that Stalnaker’s approach is too “heavy” for a proper cognitive assessment of speakers’ capability (suggestion by Arlo Costa).

2. Between Semantic Molecularism and Semantic Holism

Frege's context principle sounded so good that many philosophers developed it in a radical way, first of all, Ludwig Wittgenstein and Donald Davidson. Wittgenstein [130, 131] quoted the context principle both in the *Tractatus Logico-Philosophicus*, and in the *Philosophical Investigations*. In this later work, he claimed also that the meaning of a sentence depends on the language game in which it is embedded and suggested a holistic view, which much influenced Quine ([105: § 6]) who quoted approvingly Wittgenstein's claim:

(4) "To understand a sentence means to understand a language. To understand a language means to be master of a technique" ([131: § 199])

Davidson [26], strictly following Quine, gave not only a suggestion but a declaration of meaning holism, against the idea that every expression of the language has its meaning atomistically given independently from all other pieces of the lexicon:

(5) "we can give the meaning of any sentence (or word) only by giving the meaning of every sentence (and word) in the language."

To better explain his methodological stance, he refers to Frege:

(6) "Frege said that only in the context of a sentence does a word have meaning; in the same vein, he might have added that only in the context of the language does a sentence (and therefore a word) have meaning"

At first sight this stance seems an update of the old idea of semantic fields in structuralistic semantic, according to which the organization of the lexicon changes from language to language depending on the structural relations among the lexical items of a language. But Davidson's extreme view has also strong counterintuitive consequences. Was Quine right in taking Wittgenstein on his side? Was Wittgenstein a supporter of holism like Davidson was? In a series of papers, Penco [87, 92, 94] follows Dummett in challenging Quine's and Davidson's holism, but accepting the basic idea that – against atomism – meaning of individual words cannot to be fixed independently of other words.

Michael Dummett, followed by Fodor and Lepore [44], challenges holism with a criticism analogous to the one posed by Frege to Locke. Dummett [36] [38] criticizes Quine's holism and his strong denial of a viable distinction between analytic and synthetic propositions, between what is true because of language and what is true because of facts. If we reject any distinction of the kind we arrive at a paradox: if the meaning of a word depends on the totality of beliefs of an individual, then we have no guarantee that two individuals may share the same meaning: we never know whether the disagreement concerns the meanings they gave to words or their beliefs. If two individuals cannot be assured to give the same meanings to the same expressions, then they can neither agree nor disagree. Hence communication becomes impossible. The apparent paradox is therefore as follows:

(7) if meaning is defined holistically, meanings cannot be used in communication: we cannot share the same meanings, therefore we cannot agree or disagree, hence communication become impossible

This paradox denounces the consequences of holism, but does not touches upon its reasons; however, it is sufficient to make a strong methodological stance against holism (Dummett [39: p. 21]; Fodor-Lepore [44], but see also Vignolo [125: pp. 84-88]). Locke would have answered that in the habit we tend to use the same ideas; Davidson [27] answers in similar way: given that we cannot assume that we share meanings a priori, we may think that use helps us to *converge* towards the same meanings. Therefore, we have to change our conception of communication: communication is not grounded on an a priori sharing of meanings (or decoding what is in the head of other people) but the activity of converging towards shared meaning, or, as Robert Brandom [17] puts it, in the process of communication we share the structure, not the content.

Is this answer sufficient to address Dummett’s worries? Certainly, in order to converge towards something shared you need to share something, at least to share some practical ability, for instance, the ability to recognize some inferences. We need a shared practice where we may manifest our understanding of an utterance, and what follows from it (the “inferential power” of a sentence). But Wittgenstein’s legacy is not necessarily linked to semantic holism; as Dummett [37] stressed, his idea of language games is more apt to a view of language where some parts are needed to be learned before other parts, in a “molecularist” view of lexicon. Linguistic practice is composed of an unordered bunch of different language games, in which words hang together. The molecularist stance might be expressed as the idea that, if you share some sentence or proposition p , then you need to share some other propositions. However, not all your language is concerned, but only those propositions constitutive of the meaning of a word (you need to know what “to break” means in order to understand the concept of “fragile”):

$$(8) \forall p \exists q (q \neq p \ \& \ \text{Nec} (p \text{ is shared} \rightarrow q \text{ is shared}))$$

Fodor and Lepore claim that, unless you give a class of privileged propositions, you have no idea of how to choose the proposition q to be shared. Therefore this view implies the acceptance of some kind of dichotomy like the one rejected by Quine between “linguistic” and “factual” (or “analytic vs. synthetic”), although there are less compromising way to accept a distinction of the kind: for instance in classic artificial intelligence we have distinction between “definitional” and “assertional” components (Brachman and Schmolze [16])¹¹ or, partly following Michael Dummett, we may distinguish between “meaning constitutive” and “derived” aspects of meaning (Cozzo [25] who develops an epistemological definition of meaning-constitutive properties that avoids the shortcomings of the analytic-synthetic distinction; see comments in Penco [89]). However, some authors have objected that this stance is too strong for a proper answer to the worries raised by Quine about any distinction that might take the place of the analytic-synthetic distinction. John Perry and Diego Marconi have therefore suggested a weak form of molecularism, later discussed in Penco [87, 91, 92]:

$$(9) \forall p \text{ Nec} (p \text{ is shared} \rightarrow \exists q (q \neq p \ \& \ q \text{ is shared}))$$

The scope of the quantifier changes the game: there is no more any privileged class of sentences necessarily shared, but necessarily, if we share some proposition p , there will be another proposition (another belief) q that we share, although we cannot say which one in advance. This solution would avoid the a priori existence of a fixed set of “constitutive” aspects of meaning; what is necessary is that there is at least a shared belief in order to understand the interlocutor. This solution is very keen and has considered satisfying for Quinians, but it has the disadvantage of being a very weak stance in the sense that it oscillates between the stronger form of molecularism and holism. In fact, it is easy to see how the weak molecularist option oscillates between the strong molecularist one and the holistic one. On the one hand, you may ask which kinds of beliefs should be shared and you may answer (i) only the constitutive ones, and you are back to strong molecularism or (ii) any belief and you run the risk of falling again into a general holistic position where given a casual belief you may rely on another and so on until you reach in principle the entire language.

We are left with the last option; to insert an explicit mention of the context:

$$(10) \forall p \text{ Nec} \exists c (p \text{ is shared} \rightarrow \exists q (q \neq p \ \& \ q \text{ is shared}))$$

¹¹ The paper is a classical presentation of the KL-ONE systems in artificial intelligence. In KL-ONE there is a careful distinction between the description structure of the system and the assertions about co-reference, existence, etc. While the purely descriptive structure of concepts is fixed “all assertions are made relative to a *Context* and thus do not affect the (descriptive) taxonomy of generic knowledge” ([16]: p. 197). Quine and others might reply that a KL-ONE formalism represent the view point of the competence of an *individual*, a subjective competence of the author of that particular semantic network, where the definitional part is full of hidden choices based on beliefs and factual information.

where “*c*” means “context”: not *any* proposition *q* could be shared, but it is necessary that there is a context in which, if *p* is shared then there is a proposition *q* belonging to the “right” context in which a sentence is uttered. And, therefore, we are back to what we mean by “context”. A possible answer is to interpret it in a way driven by the later Wittgenstein: a context is a language game where words are given meaning by the common practice of that game. This was the original idea held by Dummett in devising his molecularism, interpreted by Tennant ([122]: p. 44) as “a possible blend of globally separable local holisms”. We may think of fragments of language where concepts are mutually dependents (like, for instance, colors). Akeel Bilgrami [12] suggested also another idea, similar to what is intended as “working context” in symbolic multi-contexts systems: we do not import everything we know or believe in every situation, but we import only those aspects of concepts that are useful. The entire “aggregate” of beliefs that a speaker attaches to an expression is not relevant at a local level: we never use all we know in a local situation, but what is needed.

The concept of context – as tool for analysing linguistic interaction – still oscillates between a cognitive aspect and an objective aspect. But definite problems help individuating a notion suitable for some specific purpose. A specific debate concerns how to define the truth conditional content of what is said with an assertion: how much context impinges on our intuitive understanding of the condition in which a sentence is true? In other words, should we rely exclusively on semantics (as interpretation of sentential components, relying on the narrow context for the saturation of indexicals) or should we rely on pragmatics (and therefore also on cognitive context of presupposition and other relevant extra-linguistic information)? I will give a short summary on this debate in the next section.

3. On the boundaries between semantics and pragmatics

The question of boundaries between semantics and pragmatics has become a specific topic in the philosophical and linguistic discussion in the last two decades (see for instance, among many other collections, Szabò [121], Bianchi [11] and Domaneschi and Penco [33]). The most traditional attitude depends on Rudolf Carnap’s view on the boundary. According to Carnap [20: p. 10], pure semantics is independent of pragmatics. In choosing the definitions and the rules of a semantics we are guided by pragmatic factors, that is considerations of a given language; “but this concerns only the motivations of our choice and has no bearing upon the correctness of the results of our analysis of the rules”. It is as if pragmatics comes before semantics, giving some inputs and then leaving semantics to do its proper work: giving truth conditions of sentences. Here, if we take “context” as “narrow context”, the *only* work pragmatics has to do is filling the parameters of the context with the right values (the referents of indexicals). We cannot tell for sure how much David Kaplan was actually influenced by the heritage of Carnap, but, certainly, there is a strong link between the author of *Meaning and Necessity* and the author of “Demonstratives” (and its technical apparatus of intensions).

Everything seemed to be settled with a clear-cut solution with the work of Paul Grice [54, 55], with the distinction between *what is said* (the truth-conditional content of a sentence in context) and *what is implicated* (what speakers intend to convey saying what they literally say, for example with implicatures). But, after a while, the Gricean concept itself of “what is said” went under strong attack from many sides. In fact, if what is said is the truth-conditional content, how can we give the truth conditions of many sentences without making some appeal to pragmatic factors?

Examples¹² run from cases of *incompleteness* or *indeterminacy* of different kinds:

(11) Ann is ready

¹² I here give a simpler and unifying presentation of the different “arguments” used by contextualists: context shifting arguments, incompleteness argument, inappropriateness arguments, indeterminacy arguments (see also a nice presentation in Borg [13]). At the end of the story every argument can be represented as a kind of indeterminacy. The example of the painted leaves, originally from Travis [123], has been widely discussed in the literature. The phenomenology of examples is really wide, and point to a general disease without a proper unifying answer.

(12) John cut the grass

(13) I didn't have my breakfast

(14) Ann is tall

(15) The leaves are green

Under which conditions can we decide whether these kinds of sentences may be true or false? “Ann is ready” seems incomplete: it has no truth conditions unless it is specified what is she ready *for*: for going out? for the exam? for eating? Analogously “I didn't have my breakfast” has an intuitive truth condition as “I didn't have breakfast *today*” that is not derivable by the syntax of the sentence. Also “Ann is tall” is completely indeterminate, because it may be true in respect of the reference class of her companions and false in respect of the average high of basketball players. Analogously “The leaves are green” – said of leaflets painted in green – seems to be true for a painter and false for a botanist. Compositionality of “literal” word meaning seems not sufficient to understand what a speaker is *saying*.

The process of interpreting sentences (11)-(15) depends on the context in which we understand *for what* A is ready, *with which means* John cut what kind of grass, *whether* the leaves are painted in green or are originally green, and so on. Depending on the context you may have different truth conditions of those sentences. In all these cases the notion of context, although not explicitly stated, is the context of dialogue or context of conversation, where different purposes or reference classes or viewpoints are relevant (see Corazza [24]). We may also speak of “wide context” as the context of utterance enriched with other parameters or relevant information, but it is not clear where these parameters are taken from.

To answer this worry, Recanati [106, 107] distinguishes among primary pragmatic processes those that are mandatory (resolution of ambiguities and saturation of indexicals) and those that are optional and consist of different kinds of modulation: enrichment, transfer, broadening and narrowing of an expression. Carston [21, 22, 23] prefers to speak of *explicature* as the inferential pragmatic process that enriches the incomplete expressions in a sentence in order to produce a truth-conditional evaluable proposition. There are differences between Recanati and Carston especially concerning the automatic or inferential aspect of the enrichment of the sentence;¹³ however, both give a fundamental role to pragmatics – to information taken from wide context, including general knowledge of the world – in order to have a truth-conditional propositional content. With a radical move, Recanati [107] speaks of truth-conditional pragmatics and challenges the standard model theoretical semantics that relies on fixed literal meanings. He asks for a general rethinking on the notion of truth conditions in natural language, where *under-determination* of meaning is the standard (differently from mathematical language where meanings are fixed). We are in front of pragmatic cognitive processes intended as “top-down” procedures that are partly free from syntactic aspects.

On the opposite side, often adhering more strictly to Grice's original view or with minor adjustments, many authors give a stricter connection with syntactic structure, in a more “bottom-up” model, which requires no further pragmatic insertion in semantics besides the saturation of indexicals. They keep a more standard “semantic” view of what is said, of the truth conditional content of our sentences: one of the first reactions came from a seminal paper¹⁴ by Kent Bach [5], who rejects Carston's and Recanati's proposals insisting that there is a level of semantic information – that can be

¹³ Recanati's primary pragmatic processes are automatic, while secondary pragmatic processes are mostly inferential or connected with frames or stereotypes. The main debate with Relevance Theory concerns the measure of inferential processes, which are more pervasive from the viewpoint of Relevance Theory.

¹⁴ In Bach [5] the main contention is against the rigidity of Grice's distinction between what is said and what is meant and the attempt to find something in between: the implicature, that is what is said from a pragmatic point of view. I will not discuss this aspect here.

also not completely propositional – but still has a role in semantic explanation. Indeed “Ann is ready” without any explication, sounds not propositional, yet it is certainly something we may use in indirect disquotational reports, differently from sentences with indexicals. I cannot report “I am tired” said by John with, “John said that I am tired”, while I can literally report “Ann is ready” said by John as “John said that Ann is ready” (the argument became famous as “inter contextual disquotational indirect report”). The mistake of contextualists, Bach claims, is to confound what is given *by* the context (the saturation of indexicals) and what is given *in* the context (everything else).

In Bach’s idea of semantic information given by sentences like “Ann is ready,” there are two aspects: something minimal and something incomplete. While the latter aspect is partly shared by contextualists, minimalists like Ernst Lepore and Emma Borg develop the former (the idea of something minimal). According to minimalists like Cappelen and Lepore [19] and Borg [14], only indexicals have a special place in semantics, forming the “Basic Set” of the only really context-dependent expressions. All other expressions that seem to be context-dependent, like “Ann is ready” express minimal propositions that are “available to provide the literal meaning of sentences” (Borg [13: p. 341]). The idea of “minimal content” has been also developed by relativist positions, developed after MacFarlane [77], which claim that minimal propositions can be true or false depending on different assessments, still keeping the same (minimal) truth conditional content.

One of the main contentions of the traditional point of view in semantics, shared by Kent Bach [6], Michael Devitt [29] and Stephen Neale [82], among others, is that contextualists make confusion between metaphysics and epistemology:

- Metaphysics of meaning concerns the constitution of meaning, in a “view from above”, and depends on the intentions of the speaker.
- Epistemology of meaning deals with the process of understanding and concerns the point of view of the hearer and the problem of a communication theory.

But isn’t this general contraposition just a new rendering of the old Carnapian view of semantics, determined by the early interest in mathematical logic, where no concern on the point of view of the hearer was relevant? Actually, even direct reference theorists like Donnellan took in the right consideration the attitude of speakers towards the attitude of the hearer; it is worth quoting a passage by Donnellan on this regard:

In the analysis of meaning given by Grice, a speaker means something by an utterance when he has a certain complex kind of intention involving recognition on the part of his audience of his intention. And what the speaker means is determined by the content of that intention. Whether he can form that intention, however, may depend upon what expectations he has about his audience and their ability to grasp his intention. It does not follow, then, from this analysis that speakers might, out of the blue, mean anything at all by any utterance. And the existence of an established practice may be usually required for speakers to have the right expectations. (Donnellan [35: p. 209])

It seems that Donnellan here presents an “epistemological” worry, linked to the speaker’s and the hearer’s cognitive limitations, abandoning the too strong separation of the roles of speakers and hearers (on this see also Domaneschi-Penco [34] and Penco [98]). The main problem of the debate becomes: shall we consider a sharp separation of metaphysics and epistemology a useful guide to a proper treatment of semantics or shall we look for some insertion of epistemological aspect to help semantics to do its proper job when concerning natural language? Maybe we need to do in semantics what Herbert Simon did in economics, recognizing a proper role of the limited or bounded rationality of the actual speakers. Coherently with this point, there is also a general worry about the concept of “minimal” proposition concerning its actual function in semantic representation: which role does it fulfil? It is true that syntactically we may produce a correct report like “john said that she is ready”, but where in the actual world shall we sensibly use such reports? It is reasonable to think that we really use

it only as relying on some anaphoric or elliptical phenomenon, or directly implying an explicature. Therefore, the problem with minimal content is whether it may perform a real function in interpreting truth conditions and many criticisms have put this notion in question.

Assuming the point of view of contextualists, on the other hand, we have to face the problem of general under-determination of meaning – with the risk of over-generation of meanings (against Grice’s desideratum that meanings should not be multiplied beyond necessity). If meaning depends on context and we want to avoid a generalized semantic holism, we need (i) some restriction of the general idea of context-dependence, (ii) some general explanation of the process of enrichment of explicature that is more than a description of the phenomena, (iii) some way to preserve compositionality of meaning, which is a mandatory principle in semantics.

This last topic has partially answered in different ways by Unsteinsson [124] and Pagin [84], and I will not discuss it further. The other two problems seem to find a possible solution in the suggestion given by Bach [5] to consider meaning as connected to a template to be enriched or a frame with slots to be filled depending on context and relevant information (this idea was anticipated, up to a point, by Marvin Minsky [75, 76], and Charles Fillmore [43]: each lexical item can be considered as linked to a complex structure, a template with slots that are normally are filled by default, but may be changed in front of new information). Carston [21: p. 226] widely relies on the idea of “template” that must be “enriched” to be properly interpreted. However, a generalization of the template solution to every kind of phrase may pose new problems. A typical case of application of the “template” solution is the problem of incomplete definite descriptions, but here the solution may present more difficulties than it appears. I will take this case as a last example of debates not yet solved in the contemporary discussion on contextual dependence.

4. Definite descriptions and the “explicit”/“implicit” divide

One of the most widely discussed problem in the philosophy of language is the topic of definite descriptions (see for instance [40] [69] [81] [104] [108] [112] [120]): descriptions that are preceded by a definite article and are therefore supposed to pick a unique individual, following the classical Russell’s theory of descriptions (“the present King of France is bald” means that there is a unique present King of France and that he is bald; an apparent falsity). A debated topic in this area is the problem of “incomplete descriptions” like “the table”, which is apparently “incomplete” because it is not descriptively sufficient to pick a unique table (this was one of the main criticism of Russell’s theory). Neale [79] labelled “implicit” and “explicit” the two main approaches to incomplete descriptions (and quantified NPs in general). The *explicit approach* requires completing the template or matrix of the description to make the description to denote just one thing, as for instance “the blue table in front of you on the right corner of the room we are in” (you may remark that we use also indexicals like “in front of *you*” or “the room *we* are in”, like in Russell’s example “the *present* King of France”, that refers to the time of the utterance). The completion may be done with free enrichment or with more constrained means linked to some syntactic aspects (resp. Carston [21], Neale [80]). The *implicit approach* assumes a contextual restriction of the domain of quantification and therefore, in the case there is a unique table in the relevant context, the definite description picks that unique table. The implicit approach has been differently defended and developed by many philosophers and linguists: while a first “simple” view would restrict the domain to a part of the world, for instance a situation, as suggested by Barwise and Perry [9], Westerståhl [126: p. 49] remarks that we are not bound to use a unique context set as domain, given that different quantifiers in the same sentences may be interpreted relatively to different domains, an assumption developed by Stanley and Williamson [119]. Stanley and Szabò [118], Stanley [117] and others insist on the necessity of linking any possible completion with hidden or aponic variables in the syntax (a wider discussion on the aponic elements in language is given by Neale [83]).

Here, however, we do not want to discuss the problem of the requirement of covert variables, or of aphonic elements in the logical form. We want instead discuss the idea suggested by Neale [78] according to whom the implicit and the explicit approach might turn out to be notational variants of one another. Neale's hinted equivalence has never been overtly sustained nor rejected. The point made by Neale is the following: on the one hand a quantifier or Determinant $[\Delta x: \phi(x)]$ might be completed with some further description "G" into $[\Delta x: \phi(x)] \& \psi(x)$ or restricted to a contextually relevant domain of quantification D , as $[\Delta x: \phi(x)]_D$ or $[\Delta x_D: \phi(x)]$. For instance, "the x : Table x " may become "the x : Table x & Placed-in-this-room x " or "the x that is a table in the domain of quantification of this room". Neale [78: p. 289] gives the following definition to show that these two approaches can be viewed as notational variants of one another:

"To convert an implicit $[\Delta x_D: \phi(x)]$ (or $[\Delta x: \phi(x)]_D$) into something explicit, just strip off the D representing the restricted domain, form a formula $x \in D$ and conjoin it to the original matrix $\phi(x)$ to produce the 'complete' quantifier $[\Delta x: \phi(x)] \& x \in D$. To convert an explicit $[\Delta x: \phi(x)] \& \psi(x)$ into something implicit, just strip off the second conjunct of the matrix, form a set description $\{y: \psi(y)\}$ and append this to the quantifier to signify the restricted domain of quantification."

The argument seems very clear (up to a point), but logical analysis is not enough to help clarifying what comes first in the order of explanation and we are left with further work concerning the psychological plausibility of the two approaches. There are at least two reasons for which the implicit approach and the explicit approach cannot turn out to be notational variants of one another:

(1) In order to give a specific descriptions in the explicit approach, we have to specify the elements of the context to which the descriptions apply; therefore, in the explicit approach, we have a double work: specifying the context and specifying the properties belonging to the elements of the context; but in specifying the context we already specify an intended domain, performing therefore at the same time what is the main characteristic of the implicit approach.

(2) The explicit approach seems to work as the last resource to make the context clear to the hearer who does not understand; it is, therefore, an aspect of a theory of communication: when the hearer does not get the context right, she needs a supplementation from the speaker who has to specify a way among many to get the referent right. However, as already remarked by Wettstein [127] for referential descriptions, the speaker needs not entertaining these specifications. In fact, the speaker does not need to represent an enriched description because it is enough she relies on the elements of the context she is aware of.

The implicit approach seems to be the most reasonable explanation of the cognitive processing of what is expressed by a speaker. When I refer to something with an incomplete definite description like "the table", I don't need to "enrich" my description; I may think, just for a reminder, "Oh I have to put the book on the table" and I need nothing more than having in mind the setting of the relevant situation. Here domain restriction comes from the awareness of the situation in which the speaker stands, and can be triggered by the incomplete definite description¹⁵, on the assumption that the speaker is not dealing with whichever table in the world, but with a specific table, given in the context of the utterance.

However, it is not only a question of cognitive processing that tends to give more relevance to the implicit approach. There is also an epistemological aspect of the agreement of speakers about the kind

¹⁵ Stanley-Szabò [118] and Stanley [117] are at the origin of indexicalism that requires a domain restriction bounded by quantifiers; following Neale [79, 80], Penco [94, 98] assumes that a definite description even if used referentially, has a quantified structure and therefore it can be considered a typical case of triggering a requirement for the restriction of the domain. Criticisms like Cappelen and Lepore [19] don't take into account that what is hidden is not a piece of lexicon, but a parameter.

of approximation needed to exchange information. Epistemological contextualists like Williamson [128] have widely insisted on the context-dependent way to fix the kind of precision with which we attribute knowledge¹⁶. This feature is relevant also when dealing with the meaning of definite descriptions in everyday conversation. In using definite descriptions, we often rely on a default agreement on the loose character of our descriptions; most of the time we are not looking for precision, but for efficiency, and where efficiency is traded with the risk of error, errors in the details of the description become irrelevant if the main core of the description works. When in a party I say:

(16) “The man drinking champagne in the corner is a friend of mine.”

I don’t care what that man is really drinking, but I use the description to select him among others. A philosopher devoted to precision interprets [the $x: F(x)$] as “the unique x that has the property F ”; a speaker in normal situation means [the $x: F(x)$] as “the x that it seems reasonable to describe as F ”, with the proviso: “but I don’t care if eventually, he is not F ; what counts is that you get the individual I was justified in thinking that their appearing is F ” (see Penco [94, 98]; see also Bach [4] and Jaszczolt [59]).

If we want to represent the conventional linguistic behaviour of efficient dialogue, then we need to recognize this aspect of default agreement and default reasoning in everyday conversation. This feature is different from the typical processes of either Recanati’s modulation or Carston’s explicature; it is a specific feature given by the context’s epistemological restriction: are we in a context with high level of precision like a legal or scientific context or in a general, relaxed, context of everyday conversation? This feature is partly coherent with the idea of “loose talk” presented by Relevance Theorists. According to Sperber and Wilson [113: p. 165], loose talk motivated by the pursuit of relevance: achieving the greatest cognitive effect with the least effort. If the cognitive effect I want to pursue is to make the hearer refer to what I have in mind I would *never* say something like

(17) “The adult male salient in the scene who seems to me, although I don’t know for certain, to drink champagne, given that we are in a party and he is drinking from a glass that seems what is normally used for champagne, but if he is drinking something else I don’t care”.

On the contrary, I will give it for granted that we all assume the looseness and approximation of our inaccurate descriptions and that we intend them just a short way to get the referent right, given the normal amount of information available at the moment. It would be different if I were a policeman required to check whether somebody is drinking an alcoholic drink when not allowed.

Speakers and hearers, sharing a common situation, conventionally share a lot of basic assumptions of what is relevant to expressing and understanding a sentence in context. If a speaker intends to refer to some individual in the context, she will choose the best means to avoid misunderstandings, granting a lot of epistemological assumptions we normally implicitly do. Maybe only philosophers and policemen might react asking: “Are you really sure he is drinking champagne”? In fact, their concern may lie not in understanding the purpose of the conversation, but only their peculiar theoretical or practical interests. But philosophers of language, differently from policemen, should also try to explain the convention of using inaccurate descriptions to get the referents right.¹⁷

¹⁶ A clear anticipation of this aspect of meaning-approximation given by the purpose of the conversation is given by Austin when he asks about the truth or falsity of sentences like “the galaxy is a shape of a fried egg” or “France is hexagonal”. Both are false on a strict scientific ground in astronomy or geography, but it is difficult to deny that both are true and useful in the context of everyday conversation. As Austin [3: p. 130] claims, a statement “fits the facts always more or less loosely, in different ways on different occasions for different intents and purposes”

¹⁷ On a development of this aspect see Penco [98], Benzi and Penco [11]. On a general phenomenology of the idea of inaccurate descriptions see also Korta and Perry [62, 63], who however seem to keep a more traditional Kripkean stance on the matter, following Kripke [64].

5. Suggestion from Computer Science: Contexts as Filters

We have seen three open debates in philosophy all centred on the notion(s) of context. In the first debate, we found that one main problem with Davidson's proposal was the absence of any restriction to the under-determination of meaning and we suggested that context dependence would be a restriction to this effect. Either a holistic or a molecularistic stance needs a restriction to local contexts. The outcome of the second debate was a generalisation of the idea of under-determination of meaning: here the problem is to find which strategies permit to solve meaning under-determination in context and we have seen that different alternative proposals are at work in semantics. The third, more specific debate, gave a first example on how the meaning and the reference of an expression are constrained by different features of the context, either restriction of the intended domain or levels of approximation required for the purpose of the conversation. We don't have to mistake purpose with meaning, but purposes may affect the meanings we give to our words.

How to deal with meaning under-determination and with reference assignment in context? Shall we continuously enlarge the number of contextual parameters? As Pagin [84: p.23] reasonably said, "it is not likely that a definitive list of potentially relevant context features can be produced". We cannot just continuously enrich the set of relevant parameters of context (or the parameters of the circumstances of evaluation) and we need a new start, a more general framework. A suggestion comes from symbolic artificial intelligence,¹⁸ a suggestion that interacts with many ideas in linguistics and philosophy. What struck me in artificial intelligence, before the development of neuroscience and big data, were two aspects that I find attuned to the Wittgensteinian viewpoint, which I described above as a generalization of Frege's context principle. Wittgenstein wanted to study how language works in the context of situations, with their aims and activities – calling "language games" these primitive ways of using language in context; language itself may be thought as a network of different language games. Basically, artificial intelligence developed both ideas, the idea of studying language in isolated chunks of knowledge (in the paradigm of toy worlds or of frames and scripts) and the idea of studying the relations among different contexts (in contextual reasoning). I will give a short reminder to these two main lines of thought, as something deeply connected with the problems philosophy of language attempts to solve.

Not only many linguists and philosophers but also many computer scientists share the idea that, in order to study how language works, we need to study specific kinds of situations in which we use words.¹⁹ A first example is the project of toy-worlds or blocks-worlds in the seventies: Winograd [129] created SHRDLU twenty years after the publications of Wittgenstein *Philosophical Investigations*. No reference to Wittgenstein in SHRDLU but a simple idea: in devising SHRDLU Winograd realized that (i) instead of trying a program for every purpose it would be better to represent a particular situation in all the details (ii) to define the meaning of the words we need to define the way in which words are used, to give the procedures activated by different linguistic actions (assertions, commands, questions) that produce the correct answers in the robot that interacts with the speaker inside the toy-world.

Two other examples come from Marvin Minsky and Charles Fillmore. Minsky [75] proposed the idea of concepts as *frames* (with slots with default values), explicitly recalling Wittgenstein's ideas of

¹⁸ Abu-Hakima and Brézillon [57] distinguish two different kinds of viewpoints in AI: the engineering viewpoint (McCarthy, Giunchiglia, and all logicians) and the cognitive viewpoint (people working mainly in communication). Actually, they also suggested that different uses of the notion of context in different disciplines make multidisciplinary interaction difficult. However, a convergence is possible: we have seen that there is a dynamic aspect in the development of dialogue context in dynamic semantics, which tends to encounter the needs of communication theory, while a more static aspect is given by the context of utterance that relies of basic elements of the situation in which an utterance is made (speaker, time, location and possibly other relevant aspects of the situation).

¹⁹ The most famous example in philosophy is Situational semantics proposed by Barwise and Perry [9], with a detachment from possible worlds semantics: when in possible worlds we have ideally a truth value for every possible proposition, in situations we are concerned with a limited part of reality.

family resemblance concepts. Following this lead, Schank and Abelson [111] proposed the idea of concepts as *scripts* as schematic kinds of actions hierarchically ordered and inheriting from the higher kind – for instance a bar inherits the properties of a commercial enterprise, which requires at least an exchange between a seller and a buyer, and has some more specific features (for an update on this line of research see Delogu, Drenhaus and Crocker [28]). Fillmore [42] notoriously developed frame semantics, where he insisted on the idea that a linguistic item activates a frame with a series of slots, some of which mandatory and others optional and ready to be filled (the distinction between “core” and “peripheral” frame elements approximates this distinction, but the expression of some core elements is not always necessarily expressed, like in an order “please, leave the room”: the unexpressed core element is the subject to which the order is given). The work on frame semantics has been developed in artificial intelligence as “Framenet” (see Fillmore and Baker [43]) and is coherent with psychological data and results as widely discussed by Barsalou [8] on the way we learn concepts in context (see also Yeh and Barsalou [132], where context is another term for background situation, and Lebois et al. [67] for a general assessment). When we learn the use of a word, we learn something more than a definition; we learn its possibility of combination with other concepts and chunks of knowledge that come with the use of the word. Actually, we implicitly learn to manage an ontology that is embedded in the lexicon and helps adapting the default meanings to specific situations, given the other surrounding lexical items, as widely discussed by Asher [1], Asher and Lascarides [2], Balletta [7] Jaszczolt [59]). These kinds of studies suggest the idea of a “rich” aspect of the lexicon that can be connected with hidden structures with variables (slots) that either need to be filled (maybe by default), or may remain empty if not required, leaving a certain amount of approximation in the information presented by the speaker.

All these attempts, and in particular the development of toy-worlds, point to a general analysis of language as an interconnected network of language games; we may think of reconstructing language individuating different toy-worlds, or different partitions of the world depending on aims and kinds of activities. Apparently, the main problem here concerns the relations among different language games or contexts: how are they connected? This problem has found a first attempt of explanation in the project of contextual reasoning²⁰ and of multi-context theories, developed by McCarthy [71, 72, 73, 74] and Giunchiglia [52, 53], with the notion of “lifting rules” (McCarthy) and “bridge rules” (Giunchiglia) that permit to import what has been derived in a context into another context, or to connect contexts at the same level. Here the idea of context is slightly different from the ones presented in the first section of this paper, because it permits to have contexts as representations of particular situations possibly using different languages, something normally not considered in the concept of context in philosophy so far. But in this respect we have another analogy with the Wittgensteinian view of natural language as a network of different language games: language games are different and not necessarily hierarchically ordered, yet they may interact each other. What is needed, therefore, is the explanation of the rules that permits navigate across them. Multi context theories defines operations on contexts, like entering/exiting a context (making the parameters explicit or implicit), importing a context inside another context, giving the rules that permit or forbid the passage from a context to another²¹. This kind of work should bring about a better awareness of what can be called “contextual rules”, that is, rules that work on contexts and across contexts: when we learn using language, besides learning some central language games, we learn how to enter and exit a context and which rules permit us to navigate across contexts. These rules amount to a proper strategy, whose apparent “mystery” we have to explain, against Davidson retreat²².

²⁰ Multi context theories were framed inside the project of common-sense reasoning, and – given that semantic-lexical competence is first of all inferential competence, as Marconi [70] shows – we may take contextual reasoning as the leading strategy for representing lexical competence (somehow following the development of semantic networks).

²¹ A slightly different view is given in philosophy by the idea of contexts that “points” to other contexts, as given in Gauker [51]; on a different version of contextual reasoning and of lifting rules see also the discussion of different epistemic contexts by Bouchard [15].

²² Davidson [26] famously said: “*strategy* is a gracious word for the mysterious process through which a speaker or a

How can these two kinds of suggestions help facing the problem of under-determination of meaning and of reference we have seen emerging in our three case studies? In facing the problem of meaning underdetermination we have seen a proliferation of different means for representing context dependence as triggered by linguistic aspects and requiring different kinds of procedures of “recovering” meaning in context: narrowing, broadening, transfer, or explicatures or implicatures, binding “and so on” (respectively, Recanati, [106, 107], Carston [21], Bach [5], Stanley [117]). What have all these procedures in common? They all are pointing to a main role of context, the role of *filtering* the relevant information. But this is exactly the fundamental tenet of multi-context theories that requires a definition of pragmatic or contextual rules, which concern, respectively, (1) partiality, (2) granularity and (3) perspective. This suggestion – originally given by Benerecetti et al. [10] and partly followed by Guha and McCarthy [56]²³ and Penco and Vignolo [99] – points toward the idea of pragmatic competence. In what follows I give some suggestion on how the role of pragmatic competence can be conceived and how it impinges on semantics proper. Pragmatic competence is contextual competence, it is the ability to enter a context, to change context, to import contexts, essentially to navigate across contexts. Representing this ability is representing the different operations that permit to fill the mandatory or non-mandatory slots of our frames, and that permit to accept an interpretation of a sentence even if not completely specified (analogously to the hints given by Perry on different levels of truth conditions).

6. Underdetermination and pragmatic competence

The problem of underdetermination has many facets but classical artificial intelligence taught us something relevant: we have strategies to face underdetermination both at lexical (conceptual) level and at sentential level in producing and interpreting natural language. The general problem of meaning underdetermination can be nicely framed if we think of context as what does the work of *filtering* meanings and references, through different kinds of procedures. The above mentioned three kinds of abilities for filtering the right meanings and referents in context may be represented as a set of different procedures, constituting a framework in which to treat different aspects of underdetermination.

- (1) **Partiality or Domain Restriction** is a property of contexts that points to the ability to get the relevant objects in the domain (including the referents of definite descriptions and other quantified phrases). Entering a context – be it a context of utterance or a discourse context – we need to identify the elements of the domain, objects, individuals and classes on which we quantify. Many linguistic features, from informative presuppositions to variable binding, help defining domain restrictions. The interpretation of a quantified sentence is almost always referring to a specific context, and the wide use of covert variables (Neale [83]) may help treating most cases of domain restrictions (Stanley [117]). Eventually, most domain restrictions will require an indexical or a demonstrative, given that there is no way to precisely and completely subclassify the universal domain (as stressed by Gauker [51]).
- (2) **Approximation or Looseness** is a property of contexts that points to the ability of deciding the level of granularity of the descriptive content depending on the goal. Entering a discourse, we always have to decide which level of approximation we should use in our description depending on the goal of the conversation. What goes under the tag of “Under-determination of meaning” is mostly related to the ability to avoid filling more or less slots of a concept or frame.²⁴ Every lexical item can be connected with

hearer uses what he knows in advance plus the data of the moment to produce a passing [local] theory”.

²³ Guha and McCarthy [56] suggested inserting two further elements: Ambiguity and Fiction. I didn’t put ambiguity only because disambiguation is typically considered as something to be done in a “pre-semantic context”, as Perry [101] would say: a mere linguistic/syntactic adjustment of ambiguous phrases or sentences is a necessary step *before* getting to semantic evaluation, with saturation of indexicals and definition of what is said. However, we may well consider disambiguation as part of the filtering work made by the context given that sometimes a syntactic ambiguity may be resolved by extra-linguistic information (the example given by Perry “I saw her duck under the table” may be easily resolved in seeing a scene with a duck or with a woman hiding under a table). About fiction the debate is so hot in philosophy now that I don’t want to enter the discussion here.

²⁴ When Stanley [117], in a criticism against Relevance Theory, says that there is no covert variable for “manner of eating” connected to “eat” he should have said that there is no *mandatory* covert variable. The lexical unit “eat”

a rich frame, but we do not need to fill all the slots. Speakers assume that hearers may easily leave some slots empty, for instance in “John cut the grass”, we may use the verb “to cut” – separating drastically parts of something – without filling the slot of which tool is used (a knife, a pair of scissors, a mower...) or we may use “grass” without specifying exactly which kind of material we are referring to (a blade of grass, a field, a piece of artificial turf...); we leave the truth conditions fixed, although we don’t know exactly what some words refer to and wait for the development of the conversation. In this case it is enough that truth conditions of a nonspecific content make a partition of worlds where the sentence is true and where it is false. We have to distinguish carefully between underdetermination and non-specificity, as Sainsbury [110] stresses. We should therefore carefully distinguish mandatory and not mandatory hidden variables: while in some cases underdetermination requires completion (e.g. comparatives like “tall”, where we need to have a reference class), in other cases there are standards of acceptance of not specific contents. In the latter case, the ontology implicit in the lexicon may help disambiguating uses like metonymy or transfer (the ham sandwich left without paying). These different kinds of looseness are a fundamental requirement of a contextual filter and need to be developed as a proper field study.

- (3) **Viewpoints:** is a property of contexts that points to the ability of coordinating different viewpoints given by indexicals and presuppositions. We check the different viewpoints in the context (starting with indexicals and with pointers to other cognitive contexts). Besides the work of Kaplan, we have also interesting suggestions for the *compatibility* of different viewpoints in local model semantics (Giunchiglia-Ghidini [53]) and in other philosophical environment like Brandom’s analytic pragmatism [17] or Gauker’s contexts pointing to other contexts in indirect speech [51] in a perspective that seems compatible with many suggestions of multi context theories.

How should we represent these abilities? Which kind of procedures can we define (lifting rules, binding processes, etc.)? Certainly, they are not just question of psychology, but are part of linguistic conventions. Should they be ordered, reasonably, in a sequential order?²⁵ Can we suppose that we first need to define the domain, then the level of approximation and then check different viewpoints? Only empirical research may help to check the psychological plausibility of the connections among these abilities: we may study which choices a speaker makes when entering a context, and which assumptions she makes using the three abilities given above.

The present paper apparently hides many contrasts among different stances, and it is not intended as an alternative to specific theories; whether the filtering work done by contextual competence will define the procedures needed to give the referents of semantic analysis or will directly enter the so called “pragmatic truth conditions” is a question still undecided. My aim is to call the attention towards a unifying framework, contributing to the definition of what is meant by “pragmatic competence”, that is, contextual competence or the ability to enter a context and to navigate among contexts. The work to be done on these abilities may have consequences in different kinds of theories.

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certainly is connected with a frame where it is possible to specify a manner of eating; the fact that it is not mandatory helps understanding not under-determination, but under-specification, which is a plain and normal linguistic phenomenon.

²⁵ For the problem of referential descriptions, the suggestion is that first we select the relevant domain and, by approximation, we try to get the intended referent depending of the correct level of looseness of the description and then take into consideration the different viewpoints of speakers, hearers and reporters. It is an empirical question whether the attributive use of a definite description prompts out only after a referential use fails to be reasonably acceptable and there has been a great empirical research on the matter, with still uncertain results.

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