

Descriptions in Dynamic Semantics: Topic, Focus, and Question Under Discussion

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CONVENZIONE
di DOTTORATO
in FILOSOFIA
NORD-OVEST



*"Just a perfect day
You made me forget myself
I thought I was someone else
Someone good"*

INTRODUCTION

The central topic that forms the foundation of this thesis is the so-called Question Under Discussion (QUD) approach to truth-conditional meaning, as defined in Schoubye and Stokke (2016). This analysis, applied by the authors to the study of certain natural language sentences that pose challenges for deriving meaning in the classical compositional sense, has the advantage of taking into account pragmatic factors that influence the conversational game played by speakers, in line with a Stalnakerian notion of conversation. Extending Russell’s position that the constituents of a sentence must be evaluated within the *context of a sentence* (Russell 1905), a QUD-based approach to meaning aims to analyze the meaning of a sentence within a *context of a discourse*, which includes both the common ground of information that interlocutors appeal to in assessing the relevance of an assertion — understood as an *answer* to a pre-established *question* (Roberts 2012) — and the new issues that speakers raise, in the form of questions, to advance the conversational game. The formulation of the approach as presented here shows how the semantic and pragmatic notions of context, question, and answer play a central role in the linguistic framework under examination.

In particular, the notion of context in this thesis will be defined each time with different nuances and meanings, depending on the philosophical and linguistic frameworks in which it was developed, and which will in turn be discussed.

In the already mentioned Stalnakerian terms, the **context** is the set of infor-

mation that discourse participants *take for granted*, and which is accepted so that the conversational activity can proceed (Stalnaker 1978). *Presuppositions*, understood by Stalnaker in the pragmatic sense of prelinguistic conditions that speakers must share — but not necessarily believe to be true — are the clearest representatives of this kind of information. In the set-theoretic definition presented in Schoubye and Stokke (2016), which naturally connects to the Stalnakerian view, the **context** is the set of worlds in which all the propositions belonging to the common ground are true. In the logic of interrogation defined by Groenendijk, which builds upon the partition theory applied to question semantics (Groenendijk and Stokhof 1984), the **context** consists of an unordered pair of data and issues, defined as a symmetric and transitive relation over the set of possible worlds within the domain of the semantic theory. In the update dynamic semantics for questions, in the variant proposed by Aloni, Beaver, et al. (2007) for topic and focus, the **context** is a pair consisting of an information state — which contains all the information available to speakers and to which they can refer anaphorically — and an environment state, a sequence of information states representing the topic of discussion in the conversation.

Building on the theoretical account defined above, this work aims to develop two main pillars. One is the study of *descriptions*, broadly meant: *definite descriptions*, in the standard Russellian formulation and in their pragmatic use following the tradition inaugurated by Strawson (1950) and Donnellan (1966); and *indefinite descriptions*, which expand on Russell's notes and are enriched with pragmatic components related to their use in a conversational context. A secondary but significant focus will also be placed on a third type of description: *predicative descriptions*. When considered within a QUD-based approach to meaning, the study of descriptions will allow us to reveal their most significant features within an account that we believe is more elegant and more responsive to an intuitive linguistic reality we wish to preserve in formulating a theory of language. As Kripke writes in *Naming and Necessity*, something having an intuitive content "is very heavy evidence in favor of anything, myself I really don't know, in a way, what more conclusive evidence one can have about anything, ultimately speaking" (Kripke 1980, p. 42).

The second pillar is the *dynamic* approach to formal semantics. The motiva-

tion for embedding a QUD-based approach to meaning within a dynamic formal semantics is intrinsically tied to the nature of the QUD model itself: since it formalizes a conversational model naturally used by speakers, it seemed only fitting to enhance its applicability by embedding it in a framework whose logical tools allow for a conversational model that mirrors actual speaker behavior — one that is steeped in constant *updates* and *changes* in the participants' informational states. Conversation is in itself a dynamic affair, where assertions are not blocks of content rigidly defined by their truth-conditions, but should instead be evaluated in terms of their *relevance* and *potential* to alter the discourse context — sometimes, where appropriate, even bypassing the truth requirement.

These two pillars will ideally be connected by a bridge in the form of a case study. Russellian descriptions will be analyzed within this new, enhanced framework, which we have called **Dynamic QUD (D-QUD)**. Extending the scope of update semantics for topic and focus as presented by Aloni, Beaver, et al. (2007), the study of descriptions in a dynamic vein will, in our view, offer a fresh perspective on how to approach this widely discussed issue in the philosophy of language — one that preserves the core insights that have shaped the debate for (more than) a century, while also enriching it with recent literature on the intentions speakers have, when uttering sentences containing (in)definite descriptions. A case study within this broader case study will involve the analysis of *slurring expressions*.

This work will then be structured as follows:

Chapter I will introduce the theoretical background of this study: descriptions, the Stalnakerian conversational model, and the semantics for questions. Alongside some observations drawn also from the linguistic literature, we will attempt to give the “emperor” of the philosophy of language debate, i.e., descriptions, some “new clothes”, which will serve the arguments and insights developed in the following chapters. **Chapter II** will examine in greater detail the QUD-based approach to meaning as defined by Schoubye and Stokke (2016), analyzing its technical formalism and pragmatic advantages. We will observe how a preliminary version of this approach has been applied to the analysis of empty definite descriptions (Schoubye 2009), and we will extend its application to the analysis of indefinite and predicative descriptions — demonstrating, we hope, that

such an extension is both plausible and theoretically fruitful. Lastly, **Chapter III** will aim to enhance the QUD framework with an update dynamic semantics, in light of the motivations outlined above. We will examine how certain concerns and criticisms directed at the QUD-based approach may be weakened or even avoided, when the background semantics is richer in its assumptions, and more effective in terms of its predictive power and fidelity to everyday conversational patterns.

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CHAPTER I

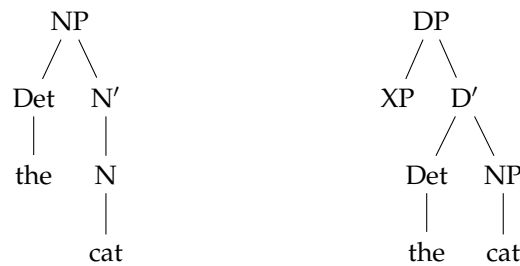
(MORE THAN) A CENTURY LATER

1.1 An Overview on (In)definite Descriptions

It goes without saying that the literature on descriptions is arguably one of the most extensive in the philosophical debate; in recent years, it has gained a renewed interest thanks to the lectures and seminars held in honor of the hundredth anniversary of the seminal work in the field, Bertrand Russell's "On Denoting" (Neale 2005). In addition to that, descriptions have become a topic of great interest also from a linguistic and cognitive point of view, hence they have been dealt with under a new different light, i.e., in experimental settings (Ortony and Anderson 1977; Mueller-Lust and Gibbs 1991; Abrusán and Szendroi 2013). It is virtually impossible to discuss in detail all the nuances of this enormous literature, therefore we will try and focus on the most salient points, which will be more helpful for our subsequent discussion, starting from *definite* descriptions, which are of course those that received major interest in the debate.

Definite descriptions are linguistic units typically – but not exhaustively – composed by the definite article (the *determiner*) and by a noun phrase; for example, expressions like "the cat", "the sunset", "the unbearable lightness of being", are definite descriptions. From a linguistic point of view, they were usually considered as noun phrases (NP); the head of "the cat"

was taken to be a projection of the noun, with the determiner occupying the specifier position of N (see figure on the left below). However, after the formulation of Abney's *DP Hypothesis* (Abney 1987), definite descriptions now fall under the category of *determiner phrases* (DP), suggesting that it is actually the determiner that heads the noun phrase (see figure on the right).



This perspective-shifting, from the noun to the definite article, was in some sense already acknowledged in the philosophy of language, at the beginning of last century. In his *Introduction to Mathematical Philosophy*, Bertrand Russell explicitly stated that the word "the" should be, to the philosophical mathematician, of "very great importance" (Russell 1919, p. 167); as a matter of fact, the British philosopher devoted two chapters of this book to the definite article, for its use both in the singular and the plural.

The reasons behind Russell's interest in definite descriptions are diverse: a logical analysis of these expressions is not only fruitful in the philosophy of language and in philosophical logic, but it has implications in other fields, like epistemology and metaphysics. In Russell's magnificent philosophical building, the analysis of descriptions cannot be considered in isolation; in fact, it has to be bound to his theory of knowledge. In his 1910 article "Knowledge by Acquaintance and Knowledge by Description", and subsequently in *The Problems of Philosophy*, Russell expounded his epistemological stance, under the influence of William James' works. According to the British philosopher, there are two ways through which a subject *knows*:

- (i) by *acquaintance*, that is, through direct access to the object in question. The relation which stands between the subject and the object is specified by Russell in terms of (direct) *awareness*: "I say that I am *acquainted* with an object when I have a direct cognitive relation to

that object, i.e., when I am directly aware of the object itself" (Russell 1910, p. 108). In this case, knowledge is taken to be *about* an object or *about* an individual. In the course of his writings, Russell significantly tightened the notion of acquaintance, and the number of objects which can genuinely be known by acquaintance; apart from sense-data, which Russell uncontroversially took as objects we relate to by acquaintance, there is still discussion about the relation we entertain with the Self. Russell himself shifted from the two possible answers to the question "Are we acquainted with ourselves?" – from the positive in Russell (1912) to the more pessimistic one in Russell (1914). In Russell's vocabulary, the only suitable expressions to refer to objects of immediate acquaintance are the so-called *logically proper names*; these expressions never overlap with grammatically proper names like "Aristotle", for the latter are actually disguised descriptions (see below). Hence, depending on which stance we take into consideration with respect to the relation with the Self, a logically proper name may be the first person pronoun "I", and the demonstratives "this" and "that", which directly refer to sense-data.¹

- (ii) by *description*, that is, we relate to an object as the satisfier either of an expression of the form "the so-and-so" (a definite description) or of an expression like "a so-and-so" (an indefinite or ambiguous description). Knowing something by description amounts to say that we know that the so-and-so exists, that is, that there is a unique object satisfying the so-and-so description. Most words are actually *disguised* definite descriptions; being the sea through which Russell sailed as vast as his philosophical production, he changed his mind with respect to the status of proper names. In Russell (1903), a proper name like "Aristotle" is taken to mean the Greek philosopher

¹Anticipating in some sense Kaplan's seminal work on demonstratives (Kaplan 1979), Russell already acknowledged, seventy years before, the peculiar status of these expressions: "It is only when you use 'this' quite strictly, to stand for an actual object of sense, that it is really a proper name. [...] It is an *ambiguous* proper name, but it is really a proper name all the same, and it is almost the only thing I can think of that is used properly and logically in the sense that I was talking of for a proper name" (Russell 1918, pp. 29–30). It should be noted however, for the sake of "completeness", that Russell further changed his mind with respect to demonstratives; in Russell (1940), he suggests in fact that "this" could actually be analyzed as a general concept, hence pointing towards a completely descriptive picture of knowledge.

in the flesh;² then, in “On Denoting”, and in the already mentioned Russell (1918), the name “Aristotle” corresponds to a description of the form “the pupil of Plato” or “the master of Alexander the Great”. Differently from those we are acquainted with, we do not have first-hand knowledge of the objects about which a judgment is expressed, i.e., we do not have direct access; therefore, in this case, knowledge is knowledge *that* an individual satisfies a given description. There is a sense in which knowledge by description rests on knowledge by acquaintance, in that the former involves “some knowledge of truths as its source and ground.” (Russell 1912, p. 22) When we confront with propositions containing descriptions, the fundamental principle is the following: *Every proposition which we can understand must be composed wholly of constituents with which we are acquainted* (*Ibidem*, p. 27). This is how one can say that one kind of knowledge lies upon the other.

Upon these epistemological foundations, Russell can then expand his program to the philosophy of language; the conclusions to be drawn from the previous definitions of knowledge are that, when we have a thought in terms of a unique individual satisfying a description, we can only entertain a *general proposition*, that is, we obtain a quantified expression that simply states that one and only one thing has that particular property. On the other hand, we have a *singular proposition* of the form Fa , where F is a predicate and a an individual constant, only if we think about that specific individual or object. Now, it seems clear that the major interest here lies in the disclosure of the correct logical form of the general proposition we entertain when thinking about a definite description, for the singular proposition which stands for an object of acquaintance has a quite simple and straightforward inner structure. This is exactly the project that Bertrand Russell decided to pursue in his seminal work of 1905.

On similar grounds, Russell holds that indefinite descriptions, that are linguistic units composed by an indefinite article and a noun phrase, like “a woman”, “a cat”, have to be treated *quantificationally*; we can reconstruct

²This is nothing but the direct reference theory, according to which the semantic content of a name is simply its referent. There has been some discussion about the extent of the attribution to Russell of this theory; for example Kripke, a defender of this theory, ascribed to the British philosopher only a watered-down version of referentialism.

his position from Russell (1919), even though his concerns were mainly focused, as it can be already observed in the previous paragraphs, on definite descriptions. At any rate, there are basically three reasons behind Russell's conclusion that indefinite descriptions are *not* singular propositions:

(i) Assume I met Francesca yesterday, a woman I know to be from Rome. I then utter:

(1) I met a woman from Rome yesterday.

If the indefinite description "a woman from Rome" refers to Francesca, then, by uttering (2) below:

(2) I met a woman from Rome yesterday, but I did not meet Francesca.

I would have contradicted myself. Therefore, the indefinite description cannot be a referential expression, hence it cannot express a singular proposition.³

(ii) The second reason appeals again to Russell's epistemology: assume I say "A woman from Rome had a poetry reading yesterday". As it turns out, there is a woman who had a poetry reading yesterday, whose name is Francesca; what the hearer of my sentence is required to do to understand my utterance is only to grasp the general proposition that some woman from Rome had a poetry reading yesterday. There is no need to establish that the *referent* Francesca had a poetry reading yesterday.

(iii) Suppose there is no woman from Rome. An utterance of "A woman from Rome had a poetry reading yesterday" would then be about nobody; however, if the indefinite descriptions is interpreted referentially, then there would be no proposition expressed by the sentence, because "there is no object answering to the description condition and hence no object to make it into any proposition" (Ludlow and Neale 1991, p. 175). Yet, there clearly is a proposition expressed by the utterance, which is false.

This is just an outline of the issues regarding definite and indefinite descriptions; in the next subsections, we will observe in more detail both their semantic and pragmatic features, *pace* a great part of the literature which, for reasons of space and consistency, cannot be dealt with here.

³Russell's argument here appears to be flawed in many ways. What it shows is arguably that "a woman from Rome" does not *always* refer to Francesca, but it does not show that "a woman from Rome" is not a referential expression.

1.1.1 The Semantic Side of the Moon

Sentences containing definite descriptions, like all other quantified statements, are dealt with by using no more elements and notions than those already presented by Frege and his quantification theory of the *Begriffsschrift* and the *Grundgesetze* (Frege 1879, 1893). As Russell writes, “[...] phrases containing *the* [...] by far the most interesting and difficult of denoting phrases” (Russell 1905, p. 481). The key notions at the basis of his achievement are the following. Consider the sentence:

(3) The King of France is bald.

The analysis of this statement is the result of the conjunction of three different background notions.

- There is an F (*existence claim*)
- At most one thing is F (*uniqueness claim*)
- Something that is F is G . (*maximality claim*)

Applying this three-fold definition to (3), we obtain:

- There is a King of France $\exists x(Kx)$
- At most one thing is King of France $\forall x\forall y((Kx \wedge Ky) \supset x = y)$
- Something that is King of France is bald $\forall x(Kx \supset Bx)$

So, (3) actually corresponds to the following:

(4) There is exactly one object which is King of France and this object is bald

which has, in turn, this logical form:

(5) $\exists x(Kx \wedge \forall y(Ky \supset x = y) \wedge Bx)$

There is a number of positive aspects which can be drawn from Russell’s insights; first, his theory permits him to translate any sentence containing a definite description into another *without* that same description. (4), unlike (3), no longer has the definite article, hence there is no mention of a definite description. This is what Russell calls the *contextual* definition of definite descriptions.

Moreover – and this is a great difference with respect to Russell (1903) – Russell extends this contextual analysis to any denoting phrase like *all a* and *some a*, thus disclosing their logical grammar, which is completely different from the surface grammar Frege (in Russell’s opinion) was too concerned with. This fact brings Russell to the conclusion that any denoting phrase is essentially an *incomplete symbol* (Russell 1919, p. 182). “The King of France” has no meaning in isolation, but it acquires one when occurring in the context of a complex sentence;⁴ so, it is a *symbol*, since it in some sense provides the means for the translation of the sentence in which it occurs into its logical form, but it is *incomplete*, because it still lacks an explicit definition like, e.g., “bachelor = unmarried man”. Thirdly, it is Russell himself that, in the last part of his paper, addresses three puzzles which, in his opinion, his denoting theory successfully solves. Each of these puzzles has originated an enormous amount of discussion and literature; among other things, each of them has been dealt with under a cognitive perspective, namely, in experimental settings whose aim was to prove whether Russell’s solutions are sound also from an intuitive point of view.

The first puzzle is semantic in nature, and it originates from Frege’s well-known puzzle about belief, which is stated in Frege (1892) and which the German philosopher thought to have solved with the introduction of the two notions of *Sinn* and *Bedeutung*. To summarize the nature of puzzle, suppose we have the following pair of sentences:

- (6) The Morning Star is the Morning Star.
- (7) The Morning Star is the Evening Star.

While the former has the shape of an analytic statement $a = a$, hence it is a Kantian *a priori* truth, the second is a synthetic expression whose general form is $a = b$. As it was later discovered, the two planets are actually one and the same, namely the planet Venus. Given this empirical fact, there should be no difference between the two statements, if we take the signs occurring in it as contents rather than names. But there clearly *is* a differ-

⁴“This is the principle of the theory of denoting I wish to advocate: that denoting phrases never have any meaning in themselves, but that every proposition in whose verbal expression they occur has a meaning” (Russell 1905, p. 480). In Russell (1903), a definite description is at least signified by a denoting concept, so that “the mother of Socrates” is *per se* Phaenarete. For Russell (1905), the description “the mother of Socrates”, if not attributed to any predicate, means nothing.

ence, at least in their cognitive value; to account for this difference, Frege concluded that “the Morning Star” and “the Evening Star” have the same reference – *Bedeutung* – but two different senses or modes of presentation – *Sinn*. In Frege’s opinion, the introduction of these two notions comes to help even in the case of what Quine calls *opaque contexts*, that are contexts in which one cannot substitute “co-referential” expressions without changing the truth of the sentences in which they occur. A typical example of sentences originating opaque contexts are *belief-statements*:

- (8) John believes that the Morning Star is the Morning Star
- (7) The Morning Star is the Evening Star
- (9) John believes that the Morning Star is the Evening Star

By Leibniz’s Law,⁵ we should be able to substitute “the Morning Star” for “the Evening Star” without any change in the truth-value of the sentence, because the two terms are co-referential; so, (8) and (9) should have the same truth-value. It is easy to observe, however, that this is not the case, for John may have no belief in the fact that the two planets are the same. In Frege’s words, “In such cases it is not permissible to replace one expression in the subordinate clause by another having the same customary referent, but only by one having the same indirect referent, i.e., the same customary sense” (Frege 1892, p. 219); so, in subordinate clauses, co-sensical terms, rather than co-referential, have to be taken. It is not possible to exhaust here all the problems that Frege’s solution arises; Rudolf Carnap in Carnap (1947) observed that this solution generates an infinite regress, in that the embedding procedure within *that*-contexts can go on *ad libitum*. Moreover, it comes at a cost; sentences like (8) and (9), like any sentence in Frege’s conception, have a reference and a sense. The reference of (8) and (9) is a *thought*, i.e., the customary sense; but what will the sense be? Arguably, a thought. But then one can build a sentence of the form “Mary believes that (6)”, and the same questions arise, and so on. This is, ontologically speaking, a violation of the Occam’s razor, in that an unnecessary multiplication of entities is involved, hence, according to Carnap, it does not represent the *optimal* solution, as opposed – allegedly – to his own, which involves the notions of extension, intension and intensional isomorphism.

⁵*Eadem sunt, quae sibi mutuo substitui possunt, salva veritate.*

On the other hand, Alonzo Church, in a series of works both antecedent and subsequent to Carnap's, does not consider multiplication of senses a threat to any formal theory; as a matter of fact, by refining Russell's type theory, Church takes the notion of *concept*, equated to the sense of a name, to be language-independent and possibly uncountable. We have a type σ_0 as the type of two truth values; a type σ_1 of concepts of members of σ_0 (*propositional concepts*); a type σ_2 of concepts of members of σ_1 , and so on.⁶

Russell's theory of descriptions deals with the belief-puzzle on two different levels: first, one can observe that his treatment applies at the core of the puzzle, namely at the level of the difference between analytic and synthetic statements. In fact, (7) becomes:

$$(10) \exists x(Mx \wedge \forall y(My \supset x = y) \wedge \exists z(Ez \wedge \forall u(Eu \supset z = u) \wedge z = x))$$

This formula does not have the shape of $a = b$, so that the puzzle cannot occur at all.⁷ Moreover, the theory of descriptions can account for the two possible readings that (9) may have. These two readings exemplify what are called *de dicto-de re* ambiguities; (9) can be rendered by taking the belief operator as ranging over the whole (7), hence obtaining a *de dicto* reading. Alternatively, one can take the two descriptions, denoting the two objects, ranging over the belief operator; this will provide us with a *de re* reading. To make things clearer, the *de dicto* and *de re* readings are represented in (11) and (12) respectively:

$$(11) \text{BEL}_j(\exists x(Mx \wedge \forall y(My \supset x = y) \wedge \exists z(Ez \wedge \forall u(Eu \supset z = u) \wedge z = x)))$$

$$(12) \exists x(Mx \wedge \forall y(My \supset x = y) \wedge \exists z(Ez \wedge \forall u(Eu \supset z = u) \wedge \text{BEL}_j(z = x)))$$

This point is crucial, for it implies that all the *de dicto-de re* ambiguities, which are originated from the interaction of a modal operator like that of belief and a quantified expression, are always *scope* ambiguities. When

⁶See Church (1951). Tyler Burge and Kripke, in the same vein, do not think that a hierarchy of senses is an undesirable result (Burge 1979; Kripke 2008). By contrast, Michael Dummett agrees with Carnap, and holds that indirect reference/indirect sense are redundant: "there is just sense, which determines it to have in transparent contexts a reference distinct from this sense, and in opaque contexts a referent which coincides with its sense" (Dummett 1981, p. 268)

⁷Notice that, in the German original, the Morning Star and the Evening Star are grammatically proper names, namely *Morgenstern* and *Abendstern*, that's why the puzzle occurs in the first place. But, as already mentioned, Russell takes names to be disguised definite descriptions.

the former ranges over the latter, we have a *de dicto* reading; *vice versa*, we always obtain a *de re* reading.⁸

The solution to the second puzzle has interesting metaphysical and ontological consequences; even though we can find in its presentation a veiled criticism toward Alexius Meinong, it is not directly addressed to him, contrary to other passages of Russell (1905) in which the Austrian philosopher is explicitly attacked. The issue here concerns *non-denoting singular terms*, that is, terms whose referent does not exist in the actual world, and which will be at the center of our ensuing discussion: the most typical example, that we have already encountered, is “the King of France”. The presence of these terms seem to bring to a violation of the law of excluded middle in the following way.

(3) The King of France is bald

(13) The King of France is not bald

If we enumerate the things of the “bald list” and those of the “non-bald list”, we will not find the King of France in either of them;⁹ that is the alleged violation of the law. With respect to (3), the logical form which is disclosed in (5) simply tells us that the sentence is false; since there is no existent King of France, the first conjunct of the sentence is false, thus the whole sentence is false. The situation of (13) is a little subtler; before entering in the analysis, some preliminary remarks are needed. As for (9) above, (13) can be given two different readings; it could be equivalent to “There is exactly one King of France and he is not bald”, or to “It is not the case that the King of France is bald”. The difference between these two sentences lies in the scope of negation and in the occurrence of the denoting phrase “the King of France”. The two statements are respectively represented as follows:

(14) $\exists x(\forall y(Ky \supset x = y)) \wedge \sim Bx$

(15) $\sim \exists x(\forall y(Ky \supset x = y)) \wedge Bx$

(14) is again false, since the entity denoted by the sentence does not exist; in this case, we say that “the present King of France” has a *primary*

⁸As a matter of fact, no twofold distinction, such as the *de dicto-de re*, can replace the notion of scope (Kripke 1977).

⁹“Hegelians, who love a synthesis, will probably conclude that he wears a wig.” (Russell 1905, p. 485)

occurrence. Whereas (15) contains the same denoting phrase in a *secondary occurrence*,¹⁰ and this is true, since the existential commitment is explicitly denied. So, if we consider the latter as the denial of (3), the law of excluded middle is safe.

So, we have seen that Russell's conclusion is that, whenever an *empty description* – a description whose referent is not existent – occurs within an expression, that expression is false. The motivation for these results have to be found in Russell's attempt of saving the law of excluded middle from the risk of being violated by the presence of these empty terms: as Frege (1892) remarked, the sentence "Odysseus was set ashore at Ithaca while sound asleep" seems to have no truth value. This is due to the fact that the term "Odysseus" has no reference, hence the principle of compositionality, according to which the reference of a sentence is given by the reference of its parts, cannot yield a truth value, since the reference of one part is completely missing. Russell's theory, however, makes no use of Frege's principle of compositionality, rather it simply points out that the proper name "Odysseus" is in fact a *disguised* definite description, to which one of the two truth values can be ascribed, once its correct logical form is disclosed.

As we will discuss in the next subsection, the Theory of Descriptions was later questioned by Peter Strawson, in Strawson (1950), and by Keith Donnellan in Donnellan (1966), among other philosophers: they both argued that Russell focused too much on the semantic issues of definite descriptions, while neglecting the *pragmatics* behind – or parallel to – them. The former, following Frege's intuitions, claimed that a sentence like (3) does not have a truth value, because, in order to evaluate a sentence of this form, one needs to take into account the *presupposition* that there exists a King of France; given that, in this case, we face a *presupposition failure*, and evaluation cannot occur at all. The latter highlighted the fact that Russell's theory is correct, but incomplete; one can employ Russell's logical instruments for describing what a speaker does when he *uses* a definite description *attributively*, that is, when someone does not have a particular referent in mind who can satisfy the description, but the same instruments do not work

¹⁰"A *secondary occurrence* of a denoting phrase may be defined as one in which the phrase occurs in a proposition p which is a mere constituent of the proposition we are considering [...]" (*Ibidem*, p. 489)

when the description is used *referentially*.¹¹

The third and last puzzle is strictly related to the previous one, with the difference that, in this case, Meinong's theory is openly criticized.¹² Consider a negative existential sentence like the following:

(16) The King of France does not exist

While dealing with the previous puzzle, we have seen that definite descriptions, being quantificational devices, can be placed under the scope of other operators: in (11) it is the BEL-operator, in (15) it is negation. Along the same lines, (16) can be given a reading thanks to which the apparent contradiction (*contradictio ex vi terminorum*, for it is said, of the denoting phrase, that does not denote) simply does not appear. The reading is the following:

(17) $\sim \exists x(\forall y(Ky \supset x = y))$

Negation ranges over the whole formula and thus means something like: it is not the case that the x such that x is the King of France exists. If we take this as the correct analysis for (16), there is no conflict with the law of contradiction, and no "unreal individuals" are needed in the ontological shelves of our philosophical system.

Turning our attention to indefinite descriptions, we have already noticed that such expressions cannot be represented by a singular proposition, therefore their logical form has the shape of a general one. Assume that F and G are non-quantified noun phrases; then, a sentence of the form "A(n) F is G " has the following logical form.

(18) $\exists x(Fx \wedge Gx)$

In Ludlow and Neale (1991), it is argued that Russell – and the Russellian – is right in attributing a quantificational reading to indefinite descriptions.

¹¹This distinction, from an experimental point of view, has been proved to be well-grasped by the speakers, i.e., they seem to have clear in mind that they can be used in these two ways (Mueller-Lust and Gibbs 1991). On the other hand, Abrusán and Szendroi (2013) has put forward experimental data which provides some support to Russell's theory, but Strawson's claims, which have been influential in the subsequent philosophical literature, appear to be harder to extract from the empirical evidence.

¹²"This is essentially Meinong's theory, which we have seen reason to reject because it conflicts with the law of contradiction. With our theory of denoting, we are able to hold that there are no unreal individuals [...]" (*Ibidem*, p. 491)

More strongly, they argue that a uniform semantic treatment for indefinite descriptions is needed; therefore, the account they develop is purely quantificational in nature. Their work belongs to a discussion regarding the alleged ambiguity in the semantics of indefinite descriptions; just like Donnellan pointed out an unexplored ambiguity in Russell's Theory of (definite) Descriptions, many linguists and philosophers have applied this kind of criticism to the study of indefinite descriptions.

Fodor and Sag (1982), on the other hand, holds the position that indefinite descriptions have a genuine semantic ambiguity between a quantificational and a referential reading, and they justify their claim observing the behavior of indefinites with respect to particular syntactic environments/phenomena, like *scope islands* and *VP-deletion*. The authors argue that in these contexts, if indefinite descriptions were interpreted as quantified expressions, they would violate the normal constraints that any other quantified phrase does not violate. Thus, instead of positing very convoluted *ad-hoc* properties in the semantics quantificationally meant, the authors conclude that there is also a genuine referential reading at work.

Traditionally, quantified expressions are taken to be *clause bound*; so, for example, a sentence like (19) below cannot receive the interpretation in (19'), in which the quantified expression has wide scope. In the examples below, we borrow the notation employed in Fodor and Sag (1982, p. 374):

- (19) Someone believes that every man I know is angry
 (19') *[every y : man(y) and know(I, y)]([Some x : person(x)](x believes that y is angry))

But it seems correct to say that the following sentence, containing an indefinite description, can receive the interpretation corresponding in (20').

- (20) Everyone believes that a man I know is angry
 (20') [An x : man(x) and know(I, x)]([every y : person(y)](y believes that x is angry)).¹³

¹³ Another example of a scope island is the antecedent of a conditional:

- If every person I know is happy then I will be happy
- *[every x : person(x) and know(I, x)](if x is happy then I will be happy)
- If a person I know is happy then I will be happy
- [An x : person(x) and know(I, x)](if x is happy then I will be happy)

So, the fact that indefinite descriptions can receive these “wide” readings do not reflect a “special” syntactic status of these expressions, rather the reason is that they are, in these examples, referring expressions.¹⁴

According to the analysis of Ludlow and Neale (1991), in order to disprove that indefinite descriptions have a referential reading, an investigation of some of the possible referential uses of these descriptions has to be carried; the conclusions drawn from the authors is that the “taxonomy [of the situations in which one uses the descriptions] is of importance to pragmatics rather than semantics” (*ibidem*, p. 176). We will expand on this “taxonomy” in the following subsection.

1.1.2 The Pragmatic Side of the Moon

Russell’s theory of descriptions has been considered as a sound analysis of (non)denoting phrases; Neale’s work at the end of last century is substantially a refinement of Russell’s theory, which was immediately considered by his contemporaries as a fundamental turning point in the philosophy of language.¹⁵ Russell’s analysis of definite descriptions as incomplete symbols subsumes the idea that the existential – and uniqueness – clauses need to be part of the logical form of the sentence containing the definite description; this in turn entails that, in Russell’s opinion, those clauses belong to the *semantic* content of the expression. This is how Russell managed to overcome the problems raised by non-denoting singular terms and their alleged “fault” of violating the law of excluded middle: in fact, we have seen that, even when definite descriptions are non-denoting, a truth-value can be ascribed to the sentence in which they occur – namely, the value False. It is interesting to observe that an ideal arch can be traced, in which the starting and ending points, represented by Frege and Strawson, converge in a quite similar philosophical position with respect to the existen-

Michael Devitt, in Devitt (2007), poses the same ambiguity with respect to *definite* descriptions. From their position, ambiguity theorists have brought several arguments in their favor, among which, in particular, the argument from misdescription and the argument from incompleteness; for reasons of space and relevance, however, these topics will not be discussed here.

¹⁴There is more here than meets the eye, namely, there are several other examples which seem to go against Fodor & Sag’s observations, allowing the possibility of *intermediate scope*. See for example Partee and Rooth (1983) and Abusch (1993) for further discussion.

¹⁵Neale (1990). As Frank Ramsey put it, the theory of descriptions is a “paradigm of philosophy” (Ramsey 1931, p. 263)

tial assumptions of definite descriptions, whereas Russell's stance, at the middle of this arch, strongly diverge from both of them. This arch will be scrutinized in what follows.

Frege noticed, in Frege (1892), that the presence of existential assumptions arising from natural languages is an unnecessary condition for the evaluation of expressions containing singular terms like names or descriptions. We are mistaken if we hold that the *Sinn* of an utterance about x contains as a part the thought that x exists; this fact is rather a *presupposition* for that utterance. Frege's argument runs as follows (Frege 1892, p. 221). Suppose we have the following sentence about Johannes Kepler and what should be its presupposition:

- (21) Kepler died in misery
- (22) The name "Kepler" designates something

(22) cannot be part of the semantic content – the *descriptive meaning* – of (21), as Russell would have held some years later, and this is how Frege proceeds in the demonstration. Suppose that, when uttering (21), we are actually uttering a conjunction of (21) and (22), as a defender of the "semantic content" position would do; so, we would obtain a new proposition $p = (21) \wedge (22)$. Now, consider the negation of p , which corresponds, under this formulation, to $\sim p = \sim((21) \wedge (22))$. This last formula is logically equivalent to $(\sim(21) \vee \sim(22))$; this, however, describes a world in which either Kepler did not die in misery or the name "Kepler" does not designate anything (or both). This state of affairs does not match, in Frege's opinion, our intuitions about the meaning of the sentence "Kepler did not die in misery". From this, Frege concludes that the existential clause does not belong to descriptive level of meaning, i.e., to its literal meaning, rather it is a presupposition belonging to...a level which Frege did not explicitly acknowledge, but which nowadays we can ascribe to the *pragmatics* of expressions. A consequence which is noted quite *en passant* by Frege, but which also shows how brilliant and decisive his intuitions were, is that presuppositions are preserved under negation: "That the name 'Kepler' designates something is just as much a presupposition for the assertion 'Kepler died in misery' as for the contrary assertion" (Frege 1892, pp. 221–222). We know today that this feature is technically called *projection*, after the fundamental

work of Langendoen and Savin (1971), and that this represents the – most typical – test for identifying something as a presupposition; in fact, it can be observed that *semantic entailments* do not project over negation. In the following, we will use the symbol $>>$ for marking presuppositions, and the commonly used $\models$ for entailments.

- (3) The King of France is bald
 $>>$ There is a King of France
- (13) The King of France is not bald
 $>>$ There is a King of France

On the contrary, observe the following behavior of entailments under negation:

- (23) Bob killed Laura Palmer
 $\models$ Bob is a murderer
- (24) Bob did not kill Laura Palmer
 $\not\models$ Bob is a murderer

We will not discuss it here in detail, but suffice it to say that other similar tests can be run, for detecting presuppositions: for example, presuppositions typically project, among other constructions, over questions, over the antecedents of conditionals and over the belief operator, whereas entailments do not have any of these features.¹⁶

Peter Strawson, in Strawson (1950), engaged with Russell's theory of descriptions by relying on the same insights carried out by Frege. Both the German and the British philosopher overcame, in two different fashions, the problems raised by terms and descriptions by preserving the principle of bivalence, which was, under their opinion, a crucial one. For sure, Russell and Strawson agreed on the fact that (a) a sentence like (3) is significant and that (b) anyone uttering (3) would be speaking truly iff there in fact exists one and only one King of France, and he is bald (Strawson

¹⁶Other peculiar features of presuppositions can be identified, when they appear in compound sentences; Karttunen famously observed that predicates can be characterized according to their behavior with respect to presuppositions. In fact, they can be categorized into *plugs* (the verbs of saying, for example, which block off all the presuppositions of the complement sentence), and *holes* (like factive verbs, which let all the presuppositions of the complement sentence become presuppositions of the matrix sentence). A third category, that of *filters*, is constituted by logical connectives, and present a mixed behavior (Karttunen 1973).

1950, p. 329). But the crucial difference to point out here is that *being significant does not amount to having a referential meaning*; more precisely, Russell has confused expressions with *use* of expressions, so he confused meaning with referring/mentioning.¹⁷ (3) surely is meaningful, but as a sentence *per se* it cannot be said to be either true or false, because this judgment varies according to its use; there was a time *t*, let's say around 1670, when France was indeed a monarchy and so anyone who would have uttered (3) would have spoken truly – assuming that Louis XIV was indeed bald – or falsely – in the opposite case. However, one century later, two centuries later, nowadays, this same utterance would not be expressing any proposition, hence it would have neither of the truth-values or a third *undetermined* one. Surely, and Strawson insisted on this, it is not always true or false, as Russell thought; the fact that the *existence claim*, which constitutes one third of the components of a sentence containing a definite description, is part of the semantic content of that sentence is a mistake, on Russell's part. Since the object denoted by the description necessarily does or does not exist, and its non-existence is enough to make the sentence false, it follows that *any* utterance of sentences containing definite descriptions has a truth-value. As shown above, this is not always the case; therefore, the existence claim is not *asserted*, rather it is *presupposed* by the utterance. The existence of the King of France represents a condition to be fulfilled in order for the sentence to be evaluated: "to give the meaning of an expression is to give *general directions* for its use to refer to or mention particular objects or persons [...] The meaning of an expression cannot be identified with the assertion it is used to make" (*ibidem*, p. 327). There is one last crucial point here: according to Strawson, we have a clear intuition today that (3) is not false, as Russell's theory states. But, as Strawson himself argued elsewhere, his argument is based indeed on intuition, that is, on a "brisk little formal argument" (Strawson 1964, p. 107): and, as expected, other authors have reported very different intuitions on this matter.

In "Reference and Definite Descriptions", Donnellan argued that both Russell's and Strawson's theories are right in one respect, but are also guilty of neglecting a fundamental aspect of definite descriptions. As it has been

¹⁷Strawson (1950, p. 328). As Strawson himself specifies, he uses the word "expression" as a short-hand for "expressions with a uniquely referring use" (a definite description) and the word "sentence" for "sentence beginning with such an expression".

already discussed in the previous sections, Russell's analysis takes definite descriptions to be *quantificational devices*, and this, as it has been said, depends on his epistemological stance with respect to the objects we may know by description and those we may know by acquaintance. Given this position, Russell's theory is able to encapsulate what Donnellan calls the *attributive use* of descriptions. "A speaker who uses a definite description attributively in an assertion states something about whoever or whatever is the so-and-so" (Donnellan 1966, p. 285); so, a sentence like "The *F* is *G*" expresses a proposition like "Whatever is uniquely *F* is *G*". On the other hand, "A speaker who uses a definite description referentially in an assertion [...] uses the description to enable his audience to pick out whom or what he is talking about and states something about that person or thing" (*ibidem*), that is, that very same sentence can be used to pick out a specific individual *x* and say of *x* that it is *G*. The referential use is somehow the one identified by Strawson's intuitions; the truth-valuelessness of a sentence like (3) depends on the fact that, indeed, there is no referent to rely on, hence there is a presupposition failure. So, Russell's theory is correct in that it identifies the attributive use of descriptions, but it fails in recognizing the referential one; and Strawson's theory runs the opposite way.

To make things clearer, consider the sentence "Smith's murderer is insane" and the two following scenarios:

- (i) We observe the corpse of Smith brutally murdered. By simply considering the manner in which the killer has operated and the fact that Smith was an extremely lovable person, we say "Smith's murderer is insane": in this case, we do not know who Smith's murderer is. So, the sentence is here used in an attributive way; the proposition conveyed coincides with the general proposition semantically represented by a Russellian theory.
- (ii) We are at the trial for Smith's murder, and Jones has been charged with the crime. We are discussing his strange behavior at the trial and we say "Smith's murderer is insane"; if someone asks to whom we are referring, we can easily answer "Jones", whether or not Jones is the actual murderer. This is the referential use of descriptions. In this case, the proposition conveyed is an *object-dependent* proposition of the form *Ij*, where *I* stands for "being insane" and *j* for "Jones";

but this proposition is not equivalent to the Russellian one.

The conclusions that can be drawn from Donnellan's analysis are that, in some cases, descriptions work *à la* Russell, in other cases they are Strawsonian. What Donnellan left tacit – and it is not clear whether he has taken any position on the issue – is the source of these two different uses: linguists and philosophers have long discussed about the possibility of a genuine *semantic* ambiguity corresponding to the attributive and referential use of descriptions, or about a unifying analysis, after which pragmatic processes in the form of Gricean *conversational implicatures* can derive the different uses. One of the chief proponents of a unifying analysis is Kripke in Kripke (1977): in this work, he essentially follows up on Grice's distinction between what is literally said by an utterance and what is communicated by that same utterance. The former corresponds to what is represented by a Russellian proposition – in Kripke's words, the *semantic reference* – whereas the latter coincides with the speaker's intention of conveying a given proposition – hence, the *speaker's reference*. To apply this distinction to Smith's example, particularly in the case of the courtroom, we have that what is said is a general proposition about someone who is Smith's murderer and is insane; however, what is really meant by the utterance is that Jones is insane. So, even when confronted with referential uses, there is no need to disregard Russell's theory, since it can still perfectly work at the level of what is literally said, i.e., at the semantic level; speaker's reference is just a result of Gricean pragmatic procedures.¹⁸ On the other hand, an ambiguity theorist like Michael Devitt (see, *ex multis*, Devitt 2004; Devitt 2021) assumes that referential descriptions are semantically significant; there simply is a convention in using descriptions in this way which does not belong to pragmatics, rather it is a semantic affair.

Let us turn our attention, now, to indefinite descriptions, and the pragmatic issues which are tied to their analysis; in these respects, we are going to discuss the observations put forward in Ludlow and Neale (1991). According to the authors, indefinite descriptions, apart from being semantically

¹⁸See Penco (2019) for further discussion on speaker's and semantic reference. Among the reasons purported by Kripke in favor of a unitary theory, there is also a methodological one: the former is always "preferable to theories that postulate an ambiguity" (Kripke 1977, p. 256). This is a sort of Occamian reason of simplicity which, in a philosophical theory, should always be pursued.

quantificational devices, can have basically *three* different uses:

Referential Uses: Suppose I am at the bar with you. We both notice Barney, whom we know to be a playboy. Seeing Barney flirting with your sister, I utter (25):

(25) A playboy is flirting with your sister

My utterance is grounded in the belief about Barney, namely, that he is flirting with your sister. And what I mean to communicate is that Barney is flirting with your sister. This is the referential use of indefinite description:

Definition: An indefinite description “a(n) *F*” is being used *referentially* in an utterance of “An *F* is *G*” iff (i) the speaker intends to communicate something about a particular individual *i*, and (ii) the speaker is using “an *F*” intending that her audience shall realize that it is *i* that she intends to communicate something about.

To argue that (25) has a referential use amounts to say that indefinite descriptions have the same properties of a referring expression, that is, they are singular propositions. But this is misleading. Recall that, in Russell’s definition, an expression is referring iff the bearer (the referent) is a constituent of the proposition expressed by an utterance of the sentence containing the referring expression. Consider the following pair:

(26) Barney is flirting with your sister

(25) A playboy is flirting with your sister

Names are indeed referring expressions; so, if I utter (26), and the hearer does not know who Barney is, then the hearer should not be in principle able to understand the proposition I am expressing. On the other hand, if I utter (25) and I use “a playboy” referentially, I want to communicate something about Barney, and I use the indefinite implicating that the hearer should infer that it is Barney I intend to communicate something about.¹⁹

¹⁹My “belief” in the understanding of the hearer works following this pattern; being the

But suppose the hearer either does not know who Barney is, or does not know that he is a playboy (therefore invalidating the final inference); “Would H[earer] thereby be deprived of the possibility of grasping the proposition expressed by S[peaker]’s utterance?” (Ludlow and Neale 1991, p. 178).

The answer is “no”, according to intuitions, at least. But, if one wants to argue against the quantificational/Russellian treatment of indefinites by positing a genuine referential one, then she needs to present an argument explaining why the hearer would be deprived of that possibility. The pattern is clear; if the speaker is competent in her language, speaks clearly and fluently, and if the hearer is paying attention and is competent in the speaker’s language as well, then the latter is in the position to grasp the proposition expressed by the former.

Let us indicate, with the help of Ludlow and Neale (1991)’s terminology, the three layers that a referential use of (25) has:

SG (Speaker’s Grounds): Fb

PE (Proposition(s) Expressed): $\exists x(Px \wedge Fx)$

PM (Proposition(s) Meant): Fb

As it appears clear, **SG** and **PM** are singular propositions, whereas **PE** is general. The possibility of a referential use does not require postulating a semantic ambiguity; the inference that the speaker expects the hearer to draw should, in Ludlow and Neale’s opinion, not belong to the semantics of the expression, rather it pertains to a *pragmatic* apparatus of a Gricean sort.

Specific Uses: Suppose I was audited by the IRS last year, by a man called Bill Beastly. Mr. Beastly caused me untold misery for three days, at the end of which he ruled that I owed the IRS a further two dollars. I receive a letter from the IRS informing me that Mr. Beastly will be

context the one sketched above, I know that the hearer knows who Barney is, I know that he knows that he is a well-known playboy, *therefore* I expect him to infer that, in this use of the indefinite description, it is Barney I intend to communicate something about.

coming to see me again today. So, I come to have the singular belief that Mr. Beastly is coming to see me today. If someone asks me why I look so sad, I utter (27):

(27) An auditor is coming to see me today

If I have (singular) grounds for an assertion of the form “A(n) *F* is *G*”, but I do not intend to communicate a singular proposition, I’m using the indefinite description *specifically*.

It is possible to strengthen, in a sense, a specific use of an indefinite description; in the example mentioned before, the hearer – arguably – would not deduce from my utterance that I had singular grounds for it. But imagine another example. We are walking down the street, and you notice that there is an enormous graffiti on a wall. You ask me who did that, and I reply with (28):

(28) A friend of mine did it

For sure I have singular beliefs grounding my assertion (for example, about my friend Spike), but I do not expect the hearer to know who Spike is. Nonetheless, I expect the hearer to understand that I have specific **SG**. This use of the indefinite description is *strongly specific*, whereas the previous one may be labeled *weakly specific*. As before, it can be asked whether the specific use of the indefinite expression appeals to a referential semantic interpretation; and, as before, the answer is negative, because the hearer is still perfectly capable of grasping my **PE**, i.e., the general proposition that a friend of mine did that enormous graffiti, without any failure of the inferential process of understanding like the one mentioned above.²⁰

Definite Uses: Suppose there is a crime wave in a village; many people have had their jewelry stolen by a unique (according to the police) individual, who has come to be known as “the local jewelry thief”. One day, one of the villagers becomes victim of this thief; when a friend of his asks him why he is so upset, he utters (29):

²⁰Fodor and Sag (1982) focuses on the specific use to conclude that indefinite descriptions genuinely present a semantic ambiguity between a quantificational and a referential reading. However, their account has been heavily criticized in Ludlow and Neale (1991).

(29) A jewelry thief paid me a visit this morning

Assume that **SG** are given by a non-singular belief about the thief, namely, that he paid the villager a visit this morning. This belief is general, in that it is about the unique satisfier of a definite description; and this is also **PM**. The situation is thus depicted as follows:

SG (Speaker's Grounds): $\exists x(Tx \wedge \forall y(Ty \supset x = y) \wedge Vx)$

PE (Proposition(s) Expressed): $\exists x(Tx \wedge Vx)$

PM (Proposition(s) Meant): $\exists x(Tx \wedge \forall y(Ty \supset x = y) \wedge Vx)$

Ludlow and Neale (1991) calls this use of indefinite descriptions a *definite* use:

Definition: A description "a(n) *F*" is used *definitely* in an utterance of "a(n) *F* is *G*" iff (i) the speaker's grounds for her utterance are furnished by the non-singular belief that the unique *F* is *G*, and (ii) the speaker intends to communicate that the *F* is *G* (or at least intends to communicate that some such non-singular belief furnishes the grounds for his utterance).

Claiming that definiteness pertains to the semantics of indefinites is tantamount to claim that **PE** is actually a definite description; this is strange. Assume that the jewelry thieves are two; under this condition, the semantics in question should entail that what is said in (29) is false, for what is said (for those who claim an ambiguity in the semantics) was that there is only one thief who paid me a visit. This appears to be counterintuitive, for (29), uttered in these circumstances, conveys something true.

Having analyzed the different uses of indefinite descriptions, the conclusion drawn by the authors is that nothing about such uses "warrants the postulation of a semantically referential interpretation" (Ludlow and Neale 1991, p. 184).

1.1.3 ...and Predicative Descriptions

In this subsection, we would like to address a *side* argument, namely, the possibility of having a *third* use for descriptions: the *predicative* use. In the

second chapter, we will also expand on this argument, by showing that a QUD-based approach to meaning could help treating this peculiar kind of descriptions in a – more or less – satisfactory way. Before introducing the issue, we need to clarify some elements first.

It is possible to identify at least three criteria which can help us discriminate between a description used attributively, and one used referentially, each with its own level of complexity;

- by seniority, Russell's *acquaintance*, which we have already discussed. Being acquainted with something provides access to a referential expression; having no acquaintance, instead, can only support an attributive expression - or, in Russell's terminology, a denoting expression.²¹
- There is, in some sense, a slightly watered-down concept than acquaintance, exposed in Donnellan (1966), which is the concept of *having in mind*: Donnellan employs the notion for explaining how a misdescription, that is, a description referring to an object which, as a matter of fact, does not have the property predicated of it, succeeds nonetheless in its referential function. Suppose, at a party, I see a person holding a martini glass, and then ask to my friend:

(30) Who is the man drinking a martini?

Even if it turns out that that person is in fact drinking water instead of martini, I would still have successfully asked a question about that particular person, even if the description fails to apply to her. This is possible because, while asking the question, I have that person in mind, she belongs to the visual fields of both the speaker and the interlocutor, and the latter is understanding my referential intention. Contrast this with the attributive scenario, like that of the detective observing Smith's corpse horribly mutilated, in which the detective does not have a particular person in mind when uttering "Smith's murderer is insane". Donnellan's notion of *having in mind* rests, in some respects, on an intuitive level, for it does not have the stringent

²¹Of course, Russell did not have in mind the possibility of referential uses of descriptions, therefore this reconstruction is by and large a "posthumous" interpretation of his work in the light of Donnellan's arguments.

features of Russell's acquaintance.²²

- A simple linguistic test would also do – roughly – the job. Take the sentence “Smith’s murderer is insane”, uttered both in the attributive and in the referential scenario: if we parenthetically add the sentence “whoever (s)he is” to the previous one, the result is that, in the referential case, the utterance would be infelicitous:

(31) [**on the crime scene**] Smith’s murderer, whoever (s)he is, is insane

(32) [**in the courtroom**] # Smith’s murderer, whoever (s)he is, is insane

So, we have more or less fine-grained instruments for ascribing an attributive or a referential feature to our use of definite descriptions.

But, *pace* the Medieval scholars, *tertium datur*. Consider the following sentences:

(33) Scott is the author of Waverley (Russell 1905)

(34) Napoleon was the greatest French soldier (Strawson 1950)

(35) John is becoming the biggest jerk in town (Ludlow and Segal 2004)

These are cases in which we are presented with a *predicative use* of definite descriptions; the sentences (33)-(35) are used to “say something about an individual already mentioned” (Strawson 1950, p. 320). This passage from Strawson, who is, as a matter of fact, quite sloppy on the topic, already highlights an important difference between this predicative use and the referential one; the latter aims to single out a particular individual or object and refer to her or it. The former, on the other hand, only ascribes a property to a subject already given, without any referential intention.

We can apply (one of) the criteria mentioned above to the case of predicative definite descriptions, and observe how being acquainted/not being

²²Despite the similarities between the two notions, there is one crucial difference. According to Donnellan, and this apparently emerged only in a private conversation he had with David Kaplan, as it is explained in Kaplan (2012), having in mind (a concept) can be *transmitted*: “Donnellan once said to me that he could imagine the name ‘Aristotle’ having been first introduced in the Middle Ages by scholars who previously had used only definite descriptions to write and speak about Aristotle. According to Donnellan, these scholars may well have had Aristotle in mind, and through their conversations, through the referential use of definite descriptions and other devices, passed the epistemic state of *having Aristotle in mind* from one to another” (*ibidem*, p. 142). Acquaintance *à la* Russell, on the other hand, cannot be transmitted, for it pertains to a personal awareness level.

acquainted, or having in mind/not having in mind, is not a sufficient condition for characterizing the predicative use of descriptions. Consider again (33)-(35); in each case, I surely am not acquainted with the constituents of the proposition, as Russell himself held, hence my knowledge of them would only be by description. Hence, the descriptions in (33)-(35) should be attributive; but they are not. They lack the pivotal feature of attributive uses, namely, that the utterer does not hold a belief about a particular individual satisfying the description. Recall the crime scene scenario: the detective does not have anyone in mind while uttering “Smith’s murderer is insane”. In the predicative case, on the other hand, the utterer is ascribing a property to an individual who surely is in the utterer’s mind. In other words, if we try to add the parenthetical “whoever (s)he is” to (33)-(35), the results will be odd:

- (36) # Scott is the author of Waverley, whoever (s)he is
- (37) # Napoleon was the greatest French soldier, whoever (s)he was
- (38) # John is becoming the biggest jerk in town, whoever (s)he is

So, it is true that I have someone in mind when uttering the previous descriptions: this, however, does not amount to saying that the descriptions are used referentially, for they lack the basic referential intention which “Smith’s murderer is insane” has, when uttered in the courtroom.

So, if it is possible to discriminate between attributive and referential uses of descriptions by appealing to (one of the) criteria mentioned above, we have observed that the same criteria do not work when applied to predicative uses of description. In the second chapter, we will set as our task to identify a criterion which can help distinguishing this use from the two previous ones. We will argue that the notion of *topic*, as defined in the more perspicuous account of QUD, will account for the difference; moreover, we will show that the QUD-based approach too can help discriminating between the attributive and referential descriptions, thanks to a conversational implicatures’ effect which we will be discussing in the following chapter. At the same time, the QUD-based approach to what is said will highlight some interesting features of predicative descriptions, in relation of their being assimilated, in the literature, to *identity statements*. But we will postpone this discussion to the next chapter; now, we would like to

analyze another work in the literature on predicative descriptions, which, in our opinion, has been quite neglected by the scholars, but whose arguments seem to be intriguing and worthy of attention.

In Graff (2001), the author engages with the topic of definite descriptions on the two main levels of discussion: from a *syntactic* point of view, and also from the *semantic* point of view.

The starting point of Graff's paper is the observation, already made in Strawson (1950), that descriptions are not always used referentially, rather they could have a predicative reading. Under a Russellian treatment, there is no reason to posit any ambiguity between these two sentences:

(39) Frederik X is the king of France

(40) Frederik X met the king of France

In both cases, descriptions are taken to be quantified phrases; (39) is, as a matter of fact, the *paradigm* of Russell's theory of descriptions, as it is exemplified in "On Denoting" by the sentence "Scott is the author of *Waverley*". There are two points to make, at this point: first, Strawson observes that the difference between (39) and (40) is not only that (39) says something about an individual already mentioned, hence the description is not referential, but also that there is a sense in which (39) is about *just one* individual, whereas (40) is about two (Frederik X and the king of France).

The second point is that there are reasons for arguing that descriptions in predicative uses do pose a problem for a Russellian theory. If descriptions were indeed quantified phrases, then, from a syntactic point of view, one would expect them to have all the scope-taking properties that other quantified phrases have. But we have already shown, in the previous subsection, that this is not the case: more strongly, Graff concludes that a *unified* theory for descriptions can be provided, meaning that (in)definite descriptions always have a *predicate-type semantic value*, even when occurring in pre-copular position, that is, before the verb.

Consider a sentence like the following:

(41) He is tall, handsome, and the love of my life

Here, the verb “to be” cannot be a relation expression, as a Russellian would consistently claim, rather it is a verb of predication;²³ therefore, for purely compositional reasons, the description “the love of my life” has to have a semantic type which can combine with the verb, to yield a one-place predicate. And quantified phrases are not them.

As it was already mentioned, descriptions do not behave like other quantified phrases:

(42) Aristotle did not meet some politicians.

(43) Aristotle did not meet a politician.

These two sentences are ambiguous: (42), for example, means, on one reading, that Aristotle met no politician. On the other, it means that there were some politicians he did not meet. And (43) presents a similar pattern. A Russellian analysis could easily engage with this ambiguity in terms of *wide/narrow* scope of the quantificational phrase with respect to the negation operator:

(42') $\sim[\text{some } x: \text{politician } x](\text{Aristotle met } x)$

(42'') $[\text{some } x: \text{politician } x](\sim\text{Aristotle met } x)$

But (44) below:

(44) Max is not the owner

does not present the same ambiguities as the previous examples. It only has the logical form in (44'):

(44') $\sim[\iota x: \text{owner } x](\text{Max} = x)$ ²⁴

The fact that descriptions can only take narrow scope in such syntactic environments, contrary to what quantified phrases do, means that descriptions are *not* quantified phrases, rather they are predicate expressions. “Predicates, unlike quantifier phrases, are not the kind of expressions that *have*

²³“It is a disgrace to the human race that it has chosen to employ the same word ‘is’ for these two entirely different ideas” (Russell 1912, p. 172)

²⁴The inverted iota operator is the one originally used by Russell and Whitehead in the *Principia Mathematica*, definition *14.01 (Russell and Whitehead 1927, p. 173).

scope, and so we wouldn't expect the descriptions, if predicates, to move to a position outside the scope of the negation operator." (Graff 2001, p. 15).²⁵

At this point, the Russellian is forced to modify her position by saying post-copular descriptions have to take narrow scope; but in doing so, she either has to accept that they are not quantified phrases, or that *every* quantified phrases, in post-copular/predicative position, take narrow scope. The latter position is, however, untenable. The following examples show that quantified phrases cannot occur in predicative position at all (Graff 2001, p. 18):

- A. (45) *Sam and Lisa are not few students
(46) *Dick and Jane might have been most children on the block
- B. (47) My daughters are each mothers
(48) Eric and Lora are both parents
- C. (49) He could have been some cook
(50) Chomsky's not (just) any linguist
- D. (51) John is everything I despise
(52) At one time or another my house has been every color

Neither sentence in the A. group is grammatical; those in B. are, but only if the quantified phrases are not considered as semantic units; both sentences in C. are grammatical, but it is clear that the quantifiers occurring in them cannot be given their usual quantificational interpretation. Lastly, the sentences in D. are grammatical, but in this case it's *properties* that are being quantified over, and not individuals. These observations lead to the conclusion that (i) the verb "to be" is that of predication, rather than of relation, and (ii) the quantified phrases in (45)-(52) and descriptions do not constitute a uniform semantic category, and the latter has to be included semantically in the class of predicates.

²⁵If (44) had a wide-scope reading:

- $[!x: \text{owner } x](\sim \text{Max} = x)$

it would mean that there is a unique owner of x , but that Max is not it. This feeling, however, is already well accounted for as a Gricean conversational implicature, there is no need to frame it in the logical form of the sentence *via* a two-fold interpretation. Another possible origin of this reading can be individuated in contrastive intonation: if one reads (44) as "MAX is not the owner", the sentence seems to imply that someone other than Max owns x . But it would be wrong to account for this implication by attributing a wide-scope reading to the description.

Whether or not Graff's claims in her paper – especially the second one – are tenable or not, it will not be our concern, for the present moment; we have decided to include this work in the present chapter to provide a slightly more comprehensive presentation of the literature on descriptions, with the *proviso*, of course, that not all the works in the field have been offered. In the next chapter, we will also try and engage with, probably, the most comprehensible criticism that can be moved towards predicatively used descriptions, namely, that they simply are *identity statements*. But this will be done in due time.

1.2 “That is the Question”

1.2.1 The Conversational Turn

Alfred Whitehead wrote, in his book *Process and Reality*, that “the safest general characterization of the European philosophical tradition is that it consists of a series of footnotes to Plato” (Whitehead 1979, p. 39). If we want to pursue this metaphor, we think that it is not careless to say that the safest general characterization of the philosophy of language tradition is that it consists of a series of footnotes to Frege; the vast majority, if not all, of the essays, papers, books that have been, or will be, discussed in the present work either quotes, or refers to works that quote, a Fregean contribution. What has come to be known as the *linguistic turn* in the history of analytic philosophy owes its fortune to the work of the German philosopher, starting from the pivotal *Begriffsschrift*.

The aim of the *Begriffsschrift* was to give mathematics an ideal and perfect instrument for dealing with the issues that natural language tends to consider in ambiguous ways (due to its very nature of imperfection): for doing so, Frege reinterpreted older concepts of mathematics, while employing new and refined logical instruments, the most important – and original – of which is the *assertion sign* $\vdash$.

The sign is made up by a *content stroke* (the horizontal line, which points out the occurrence of a sentence), and by a *judgment stroke* (the vertical one), which stands for the linguistic act of asserting a sentence. The presence of the assertion sign makes it clear that there is a difference between an

evaluable content and the *act* of evaluating/judging, which, in later writings, will turn out as the difference between *what is asserted* and the *act of asserting*.

The distinction between content stroke and judgment stroke highlights the difference between predication and assertion; predication is an action which is tied to the understanding of concepts, to the *thought* they express, whereas the act of judgment, i.e., the act of asserting a sentence, is a linguistic act through which the truthfulness of the concepts is ascertained. That is why a vertical sign is needed, to specify the *force* of the uttered assertion. And, excluding assertion, Frege thought that *questions* are the only other linguistic act whose force differs from the one entertained by the assertion, even if the content of the thought asserted is the same.²⁶

The importance of the distinction between force and sense, even though not fully appreciated by contemporary philosophers, has been later grasped and reinforced by Hans Reichenbach, who extended the Fregean analysis of assertions to questions and commands. In doing so, he represented the three acts with the help of Frege’s notation, so to distinguish the content and the force with which the assertion is uttered (Reichenbach 1947);

$$\begin{array}{c} \vdash p \\ ?p \\ !p \end{array}$$

Frege hinted at the possibility of *formalizing pragmatics*.²⁷ A chief representative of the Oxford-Cambridge tradition of the philosophy of language, John Austin (who translated Frege’s *Grundlagen* (Frege 1884)), proposed a systematized theory of speech acts, whose main tenet is the tripartition of linguistic acts in three different categories, defined by the means of their *force*; a *locutionary* act (which purports to say something), an *illocutionary* act (the pragmatic intention behind the locutionary act, like, indeed, asking, commanding, and so on), and a *perlocutionary act* (the effects of the acts

²⁶Imperatives and commands, on the other hand, do not represent a linguistic act connected to a thought, arguably because there are commands that are executed without being tied to an explicit content. The difference between force and thought is crucial, but it cannot be fully developed here; for a comprehensive and detailed overview, see Penco (2010).

²⁷Even though Frege’s observations have not been fully appreciated or deepened by his contemporary philosophers, in recent years some philosophers have proposed to systematize the Fregean, and Reichenbach’s, insights on assertion signs and questions, in intuitionistic propositional logic. See, among other works, Dalla Pozza and Garola (1995).

on the hearer(s)) (Austin 1975). But Austin's fundamental and ground-breaking theory, decisively influenced by Wittgenstein's later works, is not entirely equivalent to Frege's attempt of formalizing, into a logical apparatus, the pragmatic aspects of language and conversation.²⁸ A consistent step towards this direction has been done by Stalnaker in the 70's, with his crucial works on assertions, which we are going to briefly discuss now.

Stalnaker's contributions (Stalnaker 1974; Stalnaker 1978) can be framed in the stream of works whose purpose is to formalize what happens in communication and conversation (that is why we have called this subsection "the conversational turn"), upon hearing assertions. In the Stalnakerian model, assertion and presupposition *dynamically* interact; propositions are presupposed in a conversation if they belong to the *common ground* which hold among the speakers. When an assertion is made and accepted in the conversation, the content is added to the common ground, and the truth of the proposition in question will be accessible information for later stages of discussion. The common ground is defined set-theoretically, which is then modeled with the set of worlds in which all the propositions of the common ground are true, that is, the *context set*.

Stalnaker defines three rules for assertion:

- (i) A proposition asserted is always true in some but not all of the possible worlds in the context set.
- (ii) Any assertive utterance should express a proposition, relative to each possible world in the context set, and that proposition should have truth-value in each possible world in the context set.
- (iii) The same proposition is expressed relative to each possible world in the context set.²⁹

²⁸For the purpose of providing a more coherent historical background on the issues discussed here, we would like to highlight that Austin's speech acts theory has been likely influenced by the work of Adolf Reinach "The A Priori Foundations of the Civil Law", of 1913, namely in the discussion of the notion of *social acts*. For an in-depth discussion, we refer the reader to Chrudzinski (2015); thanks to Prof. Ciecierski for pointing that out in reviewing the present work.

²⁹Stalnaker (1978, p. 88). The first principle is basically equivalent to what we will later call a *relevant* assertion; Stalnaker comments on the first principle by saying that "to assert something incompatible with what is presupposed is self-defeating [...]" and to assert something which is already presupposed is to attempt to do something that is already done" (*ibidem*, p. 89).

We have seen that the model is defined set-theoretically, and that assertions interact with the common ground by updating it with presuppositions which can, later in the conversation, be picked up by participants to accept or reject subsequent assertions; this is how conversation works dynamically. But what is the nature of presuppositions?

Communication relies on presuppositions, the assumptions which speakers *taken for granted* and expect their listeners to share. Stalnaker points out that, although presupposition is often treated as a semantic concept, here it is better understood as a pragmatic, social attitude: speakers act as if certain information is common knowledge, even if it isn't explicitly *believed* by them. The only requirement on presuppositions is that they ought to be *accepted*, so that conversation can proceed. A pragmatic view on presuppositions has the advantages, in Stalnaker's opinion, of being more tied to an intuitive understanding, compared to a *semantic* notion of presupposition; presupposition concerns how speakers use language, it is not (just) about sentence structure.³⁰ And, as Levinson convincingly put forward in his seminal work, there are other independent reasons to favor a pragmatic view on presuppositions, which can hardly be reconciled with a semantic explanation (Levinson 1983).

More often than not, presuppositions change, during conversation, because, as we have already highlighted, conversation constantly updates with the information that speakers propose to insert in the common ground *via* assertions. When speakers make statements based on new assumptions, listeners are in the position to *accommodate* the new presuppositions by updating the common ground, even though, initially, such presuppositions were not shared. The process of accommodation simply consists in *eliminating* worlds in which the new information would either contradict the old, or *updating* worlds in which no information about the assertion was present, thus "making room" for the update. For example, if one says "I have to pick up my sister at the airport", and the hearer did not know that the speaker had a sister, she can adjust her belief so that the common ground can contain the information that the speaker has a sister. Accom-

³⁰Clearly, this approach has several analogies with a Gricean theory of language, from which, among other things, arguably the very term "common ground" is borrowed; language is a cooperative activity whose aim is to exchange information.

modation appears to be a quite natural process, which helps conversations flow smoothly, even though, as said, it is not necessary that hearers *believe* that the presupposition is true. Accommodation is not related to the truth of the content of the presupposition, rather it is just a process needed for conversation to go on as easily as possible, in view of a Gricean cooperative exchange (Stalnaker 2002).³¹

Our everyday practice of communication can be explained in terms of the contents of the *intentions* and *beliefs* of the participants at the discourse; the notions of context and common ground, “the field on which a language game is played” (Stalnaker 2002, p. 720) can in fact also be analyzed in terms of the beliefs (or presumptive beliefs) of the individuals engaged in the practice of conversation. If contexts are understood in terms of the speakers’ beliefs, these will explain, according to Stalnaker, linguistic behavior more elegantly and more intuitively. So far, so good; Stalnaker’s pragmatic formalizations of the Fregean notion of assertion are a starting point for our discussion, which will be developed in the next chapter. Pragmatic presuppositions, as well, will be further developed in the accounts we are going to present later in this work; moreover, we will show that there could be a reasonable way to define formally the information states of speakers, containing their beliefs and their intentions. The project is not fully untenable, even though clearly the possibility of encapsulating the totality of the psychological issues within a formal framework is quite naïve. However, the bulk of Stalnaker’s observations can be preserved and explored.

What about questions? Stalnaker did not offer an analysis of the linguistic act of questions, even though naturally conversation is imbued with questions which are required to be answered, if conversation has to proceed. What could the impact of questions be on the common ground? From an intuitive point of view, questions do not activate requirements on the common ground, they do not eliminate worlds from the context-set thanks to the new information they carry, in that they do not contain information; what questions do is *raising issues*. Their aim is not to be informative, rather

³¹Of course, still in view of Grice’s Cooperative Principle, it is assumed that the participants at the discourse are rational and cooperative; these conditions impose that any utterance should be truthful and informative.

it is to be inquisitive. And what is the nature of the presuppositions raised by questions, like the presupposition that Renato is a smoker triggered by the question “Did Renato quit smoking?”? What will, generally speaking, a semantics and pragmatics for questions look like? These are the issues that we will explore in the next subsection, introducing the most influential semantics for questions, Groenendijk and Stokhof’s *partition theory*.

1.2.2 The Partition Theory for Questions

Questions can be analyzed under different perspectives:

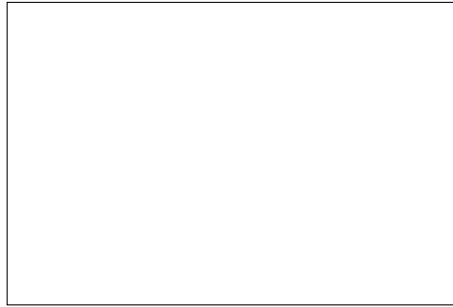
- (i) A syntactician would study questions as linguistic entities which have particular distinctive features: they modify the word order (“Eric Clapton is a guitarist/Is Eric Clapton a guitarist?”), they are preceded by interrogative pronouns or adjectives, like *who*, *what*, *which*, *why*; when uttered, they usually come with rising intonation, when written they are followed by a question mark;
- (ii) A semanticist would take questions as the objects which are denoted by the syntactic expressions. The purpose of a semanticist is to find a domain of denotations, in which it is possible to “generate logical constructions (like that of conjunction, disjunction, negation), and logical relations (like entailment, synonymy and (in-)consistency” (Aloni, Dekker, and Butler 2007, p. 2);
- (iii) A pragmatist would study questions as linguistic acts in the discourse. Following a speech act thread that we have already strung, questions have some content, and the question act is the act of asking whether the content is true. But how do these two aspects relate? This is precisely what we are going to observe in the remainder of this chapter (and of this work).

The perspective that we are going to take, in the following, is the semanticist’s one. What is the meaning of an interrogative sentence? It is very well-known that indicative sentences’ meaning is their truth-conditions; the information that indicatives convey is that the actual world is as it is described by them, so a hearer understands an indicative if she knows what a world should be like for the sentence to be true (Frege, Russell, Wittgenstein and Tarski are of course the chief proponents of the truth-conditional

view on meaning). Is it possible to say something similar about questions? The answer is positive, but not in terms of truth, rather in terms of *answerhood*; the meaning of a question could be assimilated to a *set* of propositions, those that are an answer and those that are not. The conclusion should then be that the meaning of a question is known iff one knows what is a *true* answer to that question; so, instead of speaking about truth-conditions, we should speak about *answerhood-conditions*.³²

Clearly, if one wants to sketch a complete semantics for questions, one should not be satisfied with these observations; rather, she has to prove that a series of logical and semantical consequences follow from the background theoretical assumption, that is, a sound and complete semantic apparatus has to be framed. Partition theory is the first consistent accomplishment of this project.

Groenendijk and Stokhof (1984)'s semantics for questions is based on the assumption that questions *partition logical space*. Take the logical space as the set of all the logical possibilities (or possible worlds, or possible situations), represented as a rectangle:



in which any point in the rectangle is a world. As for indicative sentences like “Eric Clapton is a guitarist” (Gc), they will be true in some worlds of the logical space, and false in some others. When asserted, Gc claims that the actual world is among the Gc -worlds, that is, the worlds in which Eric Clapton is a guitarist. What happens with a *polar* question like “Is Eric Clapton a guitarist?” ($?Gc$), on the other hand? A polar question is

³²Another semantic framework for questions, namely Hamblin's alternative semantics, which will be sketched in the next chapter, builds on this very assumption (Hamblin 1973).

such that its only possible answer are the positive and the negative one; the worlds in which the answer is positive will belong to a partition of the space, whereas the worlds where the answer is negative can be grouped in a distinguished one:

$$?Gc$$

$\sim Gc$	Gc
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If we want to depict the situation generated by a *wh-question*, the questions starting with interrogatives adjectives (or pronouns), like “Who is a guitarist?” ($?x : Gx$), then we would have the following partitions (assuming, for simplicity, that the domain contains only two individuals, Eric Clapton and Brian May):

$$?x : Gx$$

$\sim \exists x Gx$	$Gc \wedge \sim Gm$
$\sim Gc \wedge Gm$	$\forall x Gx$

Wh-questions, in this framework, calls for a full specification of the wh-term; an answer like “Eric Clapton is a guitarist”, in fact, only shows, in the diagram above, that the answer is on the right side of the partition, but it is not specified its precise location with respect to the horizontal line (it does not say whether Brian May is or not). So, that answer is just a *partial*

answer to the wh-question; the notion of partial answer will come back in a slightly different fashion in the next chapter.

The blocks in the partitions are sets of possible worlds, where propositions are classically meant as sets of worlds. So, set-theoretically, a question Q is a set of sets of possibilities such that:

- $\bigcup Q = \mathcal{L}$, with $\mathcal{L}$ being the logical space
- $\forall A, B \in Q : \text{if } A \neq B \text{ then } (A \cap B) = \emptyset$

The first clause basically says that there is an answer to a question in all the worlds of the logical space; the second clause says that there is only one full and true answer in each world (Aloni, Dekker, and Butler 2007, p. 9). Now, we will expand on the logical properties of partition theory, by showing not only its semantic features, but also how the theory permits to encapsulate the pragmatic factors pertaining to questions.³³

Groenendijk's logic of interrogation is a bridge between a standard logic account, and the additional features of meaning which arise according to Grice's Cooperation Principle. The aim is to render the Conversational Maxims into a semantic framework, so to broaden the scope of logic; the latter, in fact, is not conceived by Groenendijk, in this paper, as a "game of reasoning", which fixes the criteria for sound reasonings and valid arguments. Rather, logic is meant as an "interrogation game", that evaluates whether a conversation proceeds following correctly the Gricean principles of cooperation and information exchange. Along the lines of Stalnaker's insights on conversation, discourse is meant as a sequence of utterances, which may – or may not be – *pertinent* with respect to a background context. In a "Turing-y" fashion, Groenendijk defines dialogue in a very simple perspective, imagining two participants:

- The *interrogator* may only raise issues by asking the witness non-superfluous questions.

³³In the foregoing discussion, we will outline the main features of Groenendijk's *logic of interrogation* as they are exposed in Groenendijk (1999); it should be noted, however, that the theory we are going to sketch is a semantic account that is developed in classical first-order logic. As a matter of fact, the original logic of interrogation presented by Groenendijk was framed in a dynamic setting, hence allowing for *anaphorical relations*, the chief feature of any dynamic framework (Groenendijk 1998). However, since our purpose in the last chapter is to extend *another* dynamic framework, namely that in Aloni, Beaver, et al. (2007), we do not want to confound the reader with respect to the dynamic accounts under scrutiny. The following will serve simply as an exposition of the main features of Groenendijk's theory.

- The *witness* may only make credible non-redundant statements which exclusively address the issues raised by the interrogator.

The requirements on the witness can be linked to the *Maxim of Quality* (only make credible statements), to the *Maxim of Quantity* (only make non-redundant statements) and to the *Maxim of Relation* (exclusively address the issues under discussion); the interrogator, on the other hand, is bound to obey the *Maxim of Quantity* by asking non-superfluous questions.

The language of the logic of interrogation is defined standardly, except for some modifications: let PL be a language of predicate logic. The *Query Language* QL is the smallest set such that:

- If $\varphi \in PL$, then $\varphi \in QL$
- If $\varphi \in PL$, $\vec{x}$ a sequence of n variables ($0 \leq n$), then $? \vec{x} \varphi \in QL$.

The exclamation point signifies indicative sentences, whereas the interrogation point – intuitively – refers to interrogatives. The sequence of sentences $\varphi_1; \dots; \varphi_n$ as (the proceedings of) an *interrogation*, and we use τ to range over such sequences. If the query-operator $?$ does not bind any variable, then we have a polar question: $? \exists x Px$ asks whether there is an object whose property is P . On the contrary, a question like $?x : Px$, that is a wh-question, as seen above, asks which objects satisfy the property P .

As for the semantics, the starting point is a standard denotational semantics, on top of that an interpretation in terms of *context change potentials* is defined. For the indicatives, quite standardly, $\|\varphi!\|_{w,g} \in \{0, 1\}$, where w is an element of the set of possible worlds W , and g is an assignment of an element of the domain D to the individual variables. As for interrogatives, we will work in a *partition semantics*, so that the denotation of an interrogative in a world is the set of worlds where the answers to the question are the same:

$$\textbf{Semantics of Question: } \|\vec{x} \varphi\|_{w,g} = \{v \in W \mid \forall \vec{e} \in D^n : \|\varphi\|_{v,g[\vec{x}/\vec{e}]} = \|\varphi\|_{w,g[\vec{x}/\vec{e}]}\}$$

Whereas an indicative $\varphi!$ *selects* a subset of the set of worlds, an interrogative $\varphi?$ *divides* the set of worlds into a number of (mutually exclusives) *alternatives*. For example, a polar question, as shown above, divides the

set of worlds in two alternatives, whereas a wh-question divides the set of worlds in as many alternatives as there are denotations of the property P .

We have specified that, on a standard denotational semantics, an interpretation in terms of context change potential is defined. Since any utterance is evaluated with respect to a given background, or context of utterance, it is required, for a semantic apparatus whose aim is to define a logic of interrogation, that the notion of context has to be formally defined. Intuitively, interrogatives and indicatives carry out two different tasks; while the latter provide information, the former *raise issues*. So, a suitable notion of context should comprise these two elements: *information (data)* and *issues*. As we have already highlighted, an utterance of an indicative, updating with the context, has the potential of *eliminating worlds* in which there is an old contrasting information. Notice: if two worlds belong to different alternatives, then it is an *issue* whether the actual world is in one or in the other. So, since interrogatives' purpose is to raise issue, their potential on the context is to *disconnect* worlds, hence eliminating *pairs of worlds* (without eliminating the worlds themselves, of course).

So, the definition of the update potentials of indicatives and interrogatives with respect to a context C is the following:

- $C[\varphi!] = \{\langle w, v \rangle \in C \mid \|\varphi!\|_w = \|\varphi!\|_v = 1\}$;
- $C[\varphi?] = \{\langle w, v \rangle \in C \mid \|\varphi!\|_w = \|\varphi!\|_v\}$;
- For $\tau = \varphi_1; \dots; \varphi_n$, $C[\tau] = C[\varphi_1] \dots [\varphi_n]$.

An interrogative then eliminates a pair of worlds iff they belong to different alternatives, that is, if the two worlds “differ in such a way that the question would receive a different answer in them” (Groenendijk 1999, p. 113).³⁴

Now, we can define, for each of the Maxim that the participants at the game of interrogation has to follow, the correlated logical notion. The Maxim of Quality, according to which the witness can only make credible statements, is interpreted in terms of *contextual consistency*; to be credible, a witness should not contradict herself.

³⁴The framework also defines that indicatives *cannot* disconnect worlds, as interrogatives do, and that interrogatives *cannot* eliminate worlds, as indicatives do. This feature is not strictly necessary, however, and not completely intuitive from a natural language perspective, in that we can imagine situations in which an indicative may also raise an issue or, *vice versa*, an interrogative may also provide information.

Consistency: φ is consistent with τ iff $\exists C : C[\tau][\varphi] \neq \emptyset$.

From the definition, we can conclude that, as long as the context is not absurd (i.e., it contains inconsistent data), an interrogative will always be consistent, because interrogatives do not eliminate worlds, they only eliminate pairs. So, the interrogator is not bound to follow the Maxim of Quality; the witness, on the other hand, is compelled to do so.

The other two requirements on the witness, namely that she may only make *non-redundant statements* (Maxim of Quantity), and that she only has to address the issues under discussion (Maxim of Relation), are defined in terms of *entailment* and *licensing*:

Entailment: $\tau \models \varphi$ iff $\forall C : C[\tau] = C[\tau][\varphi]$ ³⁵

Licensing: τ licenses φ iff $\forall C, w, v : \langle w, v \rangle \in C[\tau]$ and $w \notin C[\tau][\varphi] \Rightarrow v \notin C[\tau][\varphi]$

It is crucial to notice that entailment is a *negative* requirement, in the sense that, for an indicative to be informative, it ought to be *not* entailed; in fact, entailment specifies that, if an updated context is not different from the context previous to the update, then there is no elimination of worlds, so there is no new information provided. Therefore, informativeness consists in the “shrinking” of the context.

Licensing forbids the elimination of some world in some alternative, leaving some other world from the same alternative in the data. In eliminating some worlds, a sentence would be informative, but if it does not eliminate a whole alternative, the information will not exclusively address the contextual issues. In this case, the utterance would provide information which is *irrelevant* with respect to the open issues.³⁶

³⁵Entailment defines also the requirement, on the part of the interrogator, not to ask superfluous questions; however, as Groenendijk writes, “entailment is a vice [...] in the game of interrogation” (Groenendijk 1999, p. 115), contrary to what happens in logic conceived as the game of reasoning. In fact, if an interrogator asks a question which is already entailed by the context, she is *not* eliminating pairs of worlds, i.e., she is not raising any new issue, because the context would already provide an answer to the question she is raising.

³⁶From these definitions, we can conclude that questions are *always* licensed, precisely because they never eliminate world from the data; the interrogator is not bound to obey Relation, therefore *any* question raised turns out to be relevant. This is an unwelcome result; we will see, in the third chapter of this work, that this difficult has been overcome in Aloni, Beaver, et al. (2007).

Finally, we can put together the notions of consistency, non-entailment and licensing, so to define the over-all notion of pertinence (Groenendijk 1999, p. 116):

Definition 9. (Pertinence) φ is *pertinent after* τ iff:

- i. φ is consistent with τ (Quality)
- ii. φ is not entailed by τ (Quantity)
- iii. φ is licensed after τ (Relation)

(Very) far from being exhaustive, this presentation only aimed to highlight the main features of Groenendijk's logic of interrogation which will be reinforced by further discussion in the third chapter. We have decided to simply discuss partition theory for two reasons: (i) it is the starting semantic background for the development of the Question under Discussion approach as conceived by Schoubye and Stokke (2016) (together with Hamblin's *alternative semantics*, whose definitions will equally be presented), hence it is relevant for our work, and (ii) the dynamic approach of Aloni, Beaver, et al. (2007) elaborates on Groenendijk's theory, therefore, in the third chapter, we will re-adapt the analysis of Groenendijk (1999) into the new approach we are going to propose. Moreover, thanks to the discussion in Aloni, Beaver, et al. (2007), in the third chapter we are going to sketch the main features of other semantics for questions, which will be helpful to highlight the peculiarities of Aloni et al.'s framework in comparison with the others mentioned.³⁷

In what follows, we will deal with the pragmatic side on the debate of questions, trying to show that, in what we do when we ask questions and raise issues, there is much more than meets the eye.

1.2.3 Presupposing Questions: Answers, Topic, and Focus

Questions' aim is to enquiry into the actual world; semantically speaking, as we have seen, the meaning of a question is the denotation of the pos-

³⁷ An honourable mention should be destined to a further semantics for questions, which we are not going to deal with in the present work; *inquisitive semantics*, developed by Floris Roelofsen and Ivano Ciardelli in recent years, which represents one of the most interesting developments of Groenendijk's partition theory (Ciardelli, Groenendijk, and Roelofsen 2018). Unfortunately, for reasons of space and relevance, we have decided to neglect this framework, in favor of other analyses which we have deemed more related to our concerns.

sible *alternatives* in which the answers are positive (or negative), i.e., the alternatives in which there is the actual world (the answer is positive) or in which there is not (the answer is negative). Therefore, the meaning of a question is defined in terms of its answerhood conditions. However, not every assertion can count as a plausible answer to a given question: *mutatis mutandis*, Stalnaker already pointed out that asserting something which is incompatible with what is presupposed is “self-defeating”. Along the same lines, we can say that an answer which is not related to the *question under discussion* is not self-defeating, rather it is not *relevant* to the purpose of conversation. The very notions of question under discussion (or QUD) and relevance will be explored here and basically anywhere in this work, each time in different perspectives. For the time being, we will focus on the most preliminary assumption for a pragmatic account of questions and answers: the two have to cohere with respect to the *topic* they are addressing, and with respect to their *focus* structure. But what do we mean by “topic” and “focus”?

According to vocabulary definitions, the term *topic* may refer to two different notions; one is that topic is the *subject-matter* of a discussion, the other states that the topic is the subject of an uttered sentence. The two definitions, even if similar in some respects, need to be carefully distinguished, in that their conflation has led to some confusing literature on the argument. In what follows, and in general all throughout this work, we will take topic in the first definition, so topic = *discourse* topic. Or, in current pragmatic theories, *question under discussion* (Roberts 2012), or *Theme* (Halliday 1985) (even though there are several ways in which the notions of discourse topic and Theme diverge). Topics understood in this sense play a crucial role in several linguistic facts; it determines the *focus* (Halliday’s *Rheme*) of an utterance, thus constraining the resolution of presuppositions; it generates conversational implicature; it determines the speech act performed in a given context.³⁸

³⁸Along the same lines, Gilbert Ryle, almost a century ago, proposed the following definition of what it means for a sentence *S* to be *about Q*: “Sometimes, a sentence contains two or more nouns [...] but one of them is naturally thought of as that which is being talked ‘about’ [...] This seems to mean that the sentence *S* is part of a conversation or a discourse and that *S* and all or most of the other sentences in that conversation are alike in containing [...] *Q* and no other noun is common to them. So, ‘*Q*’ signifies what is the central topic of the conversation in discourse” (Ryle 1933, p. 11). Ryle’s observations seem to make us believe that the

The topic/focus distinction (or Topic/Comment, as in Erdmann (1990)) is exemplified by the following pair of sentences:

(53) Who smoked the last cigarette?

(54) [Renato]_{Focus} [smoked the last cigarette]_{Topic}.

What we observe is that Topic is congruent with the Question under Discussion, in that abstracting on the *wh*-constituent in the question yields the property “smoking the last cigarette”, that is precisely the denotation of Topic: in conversational terms, this fact is known as *question-answer congruence principle*, and we will make extensive use of this principle, in the remainder of this work. Crucially, the Topic meant here is not equivalent to another definition of topic which is common in the linguistics literature, that is, *topical constituent*. A topical constituent is commonly taken as the constituent in a sentence to which the attention is drawn. We can observe here, in fact, that the attention is not meant to be drawn on the VP (Verb Phrase) of the sentence.

On the other hand, what Halliday calls Rheme (what we have labeled Focus) is usually prosodically marked. The marking highlights, or better, *presuppose*, what is the question under discussion in the context; and the marked constituent purports to bring *new* information to the Topic addressed by the question. And new information, quite standardly and cross-linguistically speaking, is linked to nuclear accents within the utterance.

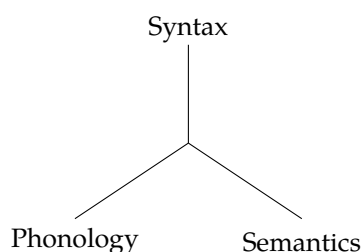
The example above shows that the topic of a sentence does not need to be identified with its grammatical subject. The topic, in fact, is defined by *pragmatic* considerations, like the presence of a QUD or other elements in the context, whereas the grammatical subject is defined by syntax. In fact, in the sentence: “As for the little girl, the dog bit her”, the subject is of course *the dog*, but the topic is represented by *the little girl*.³⁹

According to the *minimalist program* in linguistics (Chomsky 1995), phonology *never* interacts directly with semantics; interaction only occurs through

topic could only be a noun; however, later his work, he specifies that a conversation can, of course, also be about predicates or adjectives.

³⁹English has several overt constructions thanks to which we can identify the topic of a sentence: *as for*, *regarding*, *concerning* and so on. On similar grounds, von Stechow will appeal to a syntactic construction for topic in order to show that Strawson’s account of topicality, in connection with empty descriptions, is incorrect. But more on this in the next subsection.

syntax. The well-known *Y*-model of Syntax, Semantics and Phonology shows this fact:



Generatively speaking, syntax generates the structure, which is later interpreted by the semantics, and finally “spelled out” by phonology. This in turn entails that syntactic mechanisms include all features and mechanisms for deriving meaning, among which also the prosodic information regarding focus, that is then passed to the semantics and phonology.

English language shows that focus can be highlighted prosodically (as observed above), but also syntactically.

- (55) Whom did you see?
- (56) I saw [John]_F
- (57) [John]_F, I saw
- (58) [It is John]_F that I saw

All the indicatives above are plausible and relevant answers to the question under discussion in (55); and this can be observed by following the question-answer congruence principle, because the result of abstracting on the *wh*-pronoun in the question is the denotation of the predicate “having been seen by you”, that is the denotation of Topic. All the answers show how focus can be variously generated; if (56) is marked syntactically simply with the subscript, *left-dislocated structures*, as in the case of (57), induces a compulsory intonation break in uttering it; therefore, focus is marked not only *via* accent, but also *via* word-order. The same reasoning applies to the *cleft* sentence “[It is John]_F that I saw”, in which the clefted constituent marks the new information, against the topic in the complementizer.

Although in English, as shown above, it is not compulsory to have a focused constituent *consistently* in the same syntactic position, there are places, in the sentence, where it feels more natural to have informational focus. In the absence of contextual information indicating the contrary, a “natural place” for focus, sometimes called *default focus* (see, among others, Cinque (1991)) is the object of a sentence, or the last argument within the VP (Carlson 2015). Grammatical subjects, on the other hand, are more likely to be topical (given information), while the information in the VP is the new one (Rooth 1992). This linguistic fact, which we will refer to for simplicity as *Carlson’s hypothesis*, will turn out to be extremely useful for later discussion.

As briefly mentioned above, focus affects the meaning of a sentence; the generative model “predicts”, in fact, that, among the information generated by syntax, there is also the information regarding intonational patterns, which then are passed to Phonology, for them to be spelled out, and to Semantics, so that the meaning of the sentence can be computed. This is tantamount to say that different ways of pronouncing the sentence have an impact on what the speaker intends to say, *and* on what question is presupposed. The following examples will return later in this work, together with a more in-depth discussion, therefore we will just mention them here:

(59) John only introduced Bill to SUE

Capital letters indicate that the accent is placed on Sue. This sentence has two possible readings, according to the scope of the focused constituent:

- | | |
|--|----------------|
| (60) John only [introduced Bill to SUE] _F | → wide scope |
| (61) John only introduced Bill to [SUE] _F | → narrow scope |

The meaning of (60) can be summarized as “the only thing John did was to introduce Bill to Sue”, whereas (61) says something different, namely that the only person to whom John introduced Bill is Sue. So, depending on the focus structure, the same sentence could be used to convey two very different meanings. Accordingly, the two readings above presuppose that their background questions differ, and are the following:

- (62) What did John do? (or, more verbosely, “What is the only thing that John did?”)

(63) Who did John introduce to Bill?

Besides focus, the particle *only* plays a crucial role, here: *only* is, a so-called *focus-sensitive particle*, together with several other classes of words (*too, also, even*, etc.). The exclusive *only*, however, will be dealt with in the dynamic framework, for it has other interesting features, which we are not going to spoil here. In the third chapter, we are going to discuss them in more detail, when introducing Aloni, Beaver, et al. (2007).

The presuppositional feature of focus will be central in the development of the *structured meaning approach* (Krifka 1991), according to which a focused sentence consists in two parts: a *background part*, which is the presupposed topic (which corresponds to QUD), and an *assertive part*, corresponding to the new information marked by focus. And this two-fold distinction goes directly into the *semantic* apparatus of Krifka’s approach. And Krifka’s theory as well will be touched upon later in this work, together with other insights on focus.

This brief overlook on the notions of relevant answer, topic and focus is not exhaustive, and it will be further developed in later sections of this work; since they will play a major role all throughout the chapters, they will systematically be re-discussed, in the light of the “question under discussion” (no pun intended, here). In this subsection, our purpose was just to highlight that these notions are a pervasive argument in the linguistics literature; and formal semantics, and philosophy of language in general, have reshaped these notions by giving them new interpretations. Before defining the semantic account which best encompasses all these notions, that is Schoubye and Stokke (2016), in the next section we are going to discuss some preliminary observations on topics, which however cannot be inserted directly in the stream of QUD approaches to meaning. Nonetheless, the ideas involved are similar in several respects, and, most importantly, they have been applied to the cases at the center of the present work, that is, definite descriptions.

1.3 Before QUD: Topics and Definite Descriptions

Topic defined as issue, or question, under discussion plays a systematic role all throughout this work; the content of assertions uttered in response to a given question under discussion, that is, the topic the assertions are addressing, will not be evaluated in isolation, rather it will result from the dynamic interaction of its compositional meaning to the context of utterance. This approach is not completely new, however, in the linguistic and philosophical literature; before arriving at the formulations in Schoubye and Stokke (2016), some philosophers have argued that the topic/comment structure of a sentence, and specifically of the troubling *empty descriptions*, is a decisive factor for explaining the varying truth-value intuitions of speakers with respect to those critical statements. In the remainder of this chapter, we will explore these philosophers' observations.

1.3.1 Strawson at the Exhibition

Consider the following pair of sentences:

- (3) The king of France is bald.
- (64) The Exhibition was visited by the king of France.

Intuitions, according to Strawson, vary, upon hearing these sentences; while (3) elicits a feeling of "squeamishness" (Strawson 1964), that is, participants of the discourse do not have any strong intuition of truth, or falsity, (64) appears to trigger a much clearer sense of falsity. Strawson motivates this situation by appealing to the fact that, when the empty description is the *topic* of the sentence, as in the first case, in association with a context in which it is known that France is not a monarchy, we experience, through squeamishness, the *presupposition failure* of the description. Therefore, we do not reach a truth-value.⁴⁰

On the contrary, in (64) the description is not what the sentence is pragmatically about; therefore, what happens in the derivation of meaning is that

⁴⁰Strawson does not explicitly talk about *topic*, rather he employs the term *subject*. We have seen above that (grammatical) subject and topic do not always coincide, however it seems, from Strawson's observations, that he consistently meant *discourse topic*, or question under discussion (see Kadmon (2001)).

“the guilty referring expression is absorbed into a predicate-term which is attached to the innocent referring expression to make up the statement as a whole” (Strawson 1964, p. 111). A consequence of the absorption is that the only reply upon hearing that sentence is “No” (*ibidem*), hence it is more readily judged as false, rather than “squeamish”.

Consider further:

- (65) What examples, if any, are there of famous contemporary figures who are *bald*?
- (3) The king of France is bald.

In this case, the French monarch is cited as an *instance of an antecedently introduced class*, that is the class of famous bald people; since it is false that the class includes our beloved king of France, the answer counts more easily as *wrong* rather than *squeamish* (Strawson 1964, p. 113). Notice that the point raised by Strawson is equivalent to the one we have raised above, with respect to topic and focus; the topic in the sentence is constituted by the set of bald people, easily derivable abstracting on the *wh*-constituent of the question. And the class Strawson is talking about is indeed the QUD; and observe how it is consistent to argue that Strawson did not equate topic to grammatical subject, in that, in the answer, “the king of France” is most naturally thought of as the *new information*, hence the focus, conveyed by the sentence, albeit being the grammatical subject.

By stretching Strawson’s analysis, we can conclude that a definite description induces a *semantic* presupposition iff the description is the discourse topic of the sentence. This thesis, not explicitly formulated by Strawson but extrapolated from his work by Felka in Felka (2015), will be discussed in the next subsection.

The topic/comment effect has been further analyzed in cases involving definite descriptions (see, among others, Atlas (2004)). Most relevantly for our purposes, however, Strawson’s position has been heavily criticized in recent years by Kai von Fintel (Von Fintel 2004). von Fintel considers the following sentence:

- (66) Let me tell you about my friend, the king of France. I had breakfast with {the king of France/him} this morning.

The second part of the sentence above is intuitively false, even though, as Strawson would have argued, what the sentence is invariantly about is “the king of France”. A possible test for detecting topicality is, indeed, trying to substitute the alleged topic constituent with a sentential construction which is typically used for topic-marking. If the substitution is felicitous, then the marked expression is the original topic of the sentence (Reinhart 1981). The matrix “Let me tell you about x ” is an example of this construction, but notice that the same consequences would have been drawn, were the constructions the following:

- (67) I had breakfast with the king of France this morning.
- (68) *As for the king of France*, I had breakfast with him this morning.
- (69) *Regarding the king of France*, I had breakfast with him this morning.
- (70) *Concerning the king of France*, I had breakfast with him this morning.

To von Fintel, Strawson is wrong in concluding that truth-value judgments are linked to (un)successful presupposition accommodation, in the following sense:

- (64) The Exhibition was visited by the king of France.
- (71) Hey, wait a minute! I had no idea that France has a king.
- (72) # Hey, wait a minute! I had no idea that he was at the Exhibition.

The “Hey, wait a minute” test is effective for detecting presuppositions; and the fact that the second sentence above is an appropriate reply to the first one highlights that the existential presupposition of the description is still “there”, even though the description is not the topic of the first sentence.⁴¹

So, von Fintel proposes that what is actually going in the process of evaluation is that sentences are accepted or rejected with respect to a *body of information* D , that is a set of propositions, according to these rules (Von Fintel 2004, pp. 290–291);

Acceptance: Accept a sentence φ as TRUE with respect to a body of information D iff for all worlds w compatible with D : $\llbracket \varphi \rrbracket(w) = 1$.

⁴¹In Stalnakerian terms, the “Hey, wait a minute”-test is appropriate towards what is *taken for granted*, and not towards what is asserted (Rosola 2021).

Rejection: Reject a sentence φ (with presupposition π) as FALSE with respect to a body of information D iff for all worlds w compatible with $rev_\pi(D) : \llbracket \varphi \rrbracket(w) = 0$, where rev_π is the revision of the body of information D so that it entails presupposition π . So, Rejection is performed with respect to the revision, and not the body of information.

The Revision strategy is defined as follows. For a body of information D , and presupposition π , $rev_\pi(D)$ works through the following steps:

- if D already entails π , $rev_\pi(D) = D$
- if D does not entail π , $rev_\pi(D)$ is a body of information thus built:
 - Remove $\sim\pi$ from D ;
 - Remove any proposition from D incompatible with π ;
 - Remove any proposition from D that was in D just because $\sim\pi$ was in D , unless it could be shown to be true by examining the intrinsic properties of a contextually salient entity without at the same time showing that π is false;
 - Add π to D ;
 - Close under logical consequence.

Let us apply von Fintel's revision strategy to the sentence "I had breakfast with the king of France this morning". To evaluate this sentence, we have to modify D , in that it contains the false presupposition π that there is a king of France. So, we remove from D the negation of the presupposition, then we remove all the propositions which are incompatible with the presupposition, and then all the propositions that were in the body of information D just because the negation of the presupposition was there. At this point of the revision, we incur in the following fact; it is not possible to remove *any* proposition, in that the proposition "I did not have breakfast with the king of France this morning" cannot be removed, for it can be shown that a *contextually salient entity* (in this case, the entity denoted by "I") had breakfast with someone else, without showing that there is no king of France. Then, we add to D the presupposition and lastly close under logical consequence. What we obtain is that D contains the proposition that I did not have breakfast with the king of France this morning. So,

the sentence “I had breakfast with the king of France this morning” will be false in all worlds compatible with it. As our intuitions would claim.

Whether or not von Fintel’s strategy is intuitively correct, it has been matter of debate:⁴² this verificational strategy, however, has been empirically proved to be consistently used. Abrusán and Szendroi (2013), in fact, has shown that speakers quite consistently adopt this pragmatic strategy, by relying on a referentially sound item to accept as TRUE, or reject as FALSE, a sentence containing an empty description. Contrary to other factors, like Strawson’s topic/comment structure or Lasersohn’s *background knowledge* strategy, which appear to be used less frequently.⁴³

1.3.2 Felka on Empty Descriptions

In the following discussion, we will repeatedly refer to the following three sentences, for they are at the gist of Felka’s discussion on Strawson and empty descriptions. So, for ease of reading, we will state them here, so that the reader can “anaphorically” link the number to the corresponding sentence:

- (3) The king of France is bald
- (64) The Exhibition was visited by the king of France
- (39) Frederik X is the king of France

Felka’s main concern in her paper is to point out that the arguments presented by Stephen Yablo in Yablo (2006), to justify the difference in judgments between (64) and (39), are ineffective. Yablo holds that, in some

⁴²Arguably, it seems that speakers are both *logically omniscient*, since they evidently know what entailment closure, and they are *astonishingly rational*, in that they have to remove *any* proposition from the body of information which is incompatible with other propositions. See Elbourne (2013) and Rosola (2021) for further discussion.

⁴³Lasersohn argues that a sentence like:

(73) The king of France is sitting in that chair.

is judged as false, in a context in which either the chair is empty, or someone else is sitting there. So, irrespective of the existence of the king of France, speakers have enough grounds to reject the sentence (Lasersohn 1993). von Fintel claims that Lasersohn’s explanation is too weak, because a sentence like “The king of France is on a state visit to Australia this week” is still judged as false, even in the case in which there is no information whatsoever about who is on a state visit to Australia. von Fintel concludes, from that, that the mere *possibility* of examining the properties of the contextually salient entity is sufficient for accepting/rejecting the sentence.

cases like (3), presupposition failure is *catastrophic*, i.e., it leads unavoidably to a truth-valueless sentence. There are other examples, however, in which presupposition failure is not catastrophic: this is the case for (64), for the sentence can be made false without appealing to the false presupposition. Namely, one of the *falsity-makers* of (64) is that the Exhibition was visited by nobody; this proposition is true even in cases in which *there exists* a unique king of France. Yablo's account relies on these notions of truth/falsity-making, and of analytic entailments, which, for the purposes of this section, is not important to delve into: the gist of his position is that the difference between (64) and (39) depends on whether these sentences have an entailment which is false for reasons that hold in worlds where their presupposition is true. But, Felka shows, this thesis can be easily contested with some counterexamples.⁴⁴

According to Felka, Strawson's position with respect to *topicality* has been unjustly neglected in the literature, for it has the merit of doing justice to speakers' intuitions on the matter: moreover, it has obvious links with recent works in the philosophy of language concerning *aboutness* (Plebani and Spolaore 2020), hence the interest for the discussion is quite immediate.

Her proposal is to preserve Strawson's intuitions, and to better formalize his insights. For stating her arguments more clearly, she proposes to formulate Strawson's observations in the following thesis (S):

- (S) A definite description *D* induces a semantic presupposition iff *D* is a topic expression

We have already highlighted what is meant here by "topic expression", namely *discourse topic* or question under discussion; and Felka embraces this view. Consider (3) again; in accordance with Strawson, the topic of this expression is invariantly "The king of France". Therefore, by (S), (3) is truth-valueless. But, once we supplement (3) with a question provided by a context, things change. We repeat below the dialogue presented in the previous subsections:

- (65) What examples, if any, are there of famous contemporary figures who are *bald*?

⁴⁴Felka (2015), pp. 1399-1402.

(3) The king of France is bald

This exchange highlights the fact that the topic in (3) is no longer the French monarch; rather, it is the set of bald people the conversation is about. This is also confirmed by the fact that the most plausible way in which (3) can be uttered, in this context, is with a stress on the subject, hence establishing this as the *comment*, and the rest being the *topic*. And that being the case, Strawson, and our intuition, is right in claiming that (3) is, in this case, false. Similarly, if we utter (39), according to Strawson the only candidate for topicality is the subject “Frederik X”. That is why, according to him, (39) strikes us as false.

In light of these facts, Felka propose to relativize Strawson’s thesis to the *semantic types* descriptions have, in particular contextual settings. Felka motivates this fact by stating that also the *uses* of the descriptions depend on their being the topic or not. In particular, a description is used referentially only when the sentence in which it occurs is about that description; otherwise, it is used predicationally or quantificationally. So, Felka derives the following thesis (M):

- (M) A definite description D has a semantic value of type e iff D is a topic expression; otherwise, D has a semantic value of type $\langle e, t \rangle$ or $\langle et, t \rangle$.

Now, some brief specifications are needed: in the classical semantic framework of *Montague grammar* (Montague 1973; Heim and Kratzer 1998), any item in natural language sentences is associated to a specific *semantic type*:

- Individuals, and objects, are denoted by type e , standing for *individual entities*;
- Predicates are denoted by the type e, t , meaning that they express a function which takes as input an entity and returns a truth-value. Standardly, *sets of individuals* are indicated by this semantic type. Predicates will thus be defined by their *characteristic function*, which is represented, in generative compositional semantics, by Church’s λ -operator;
- Second-order predicates, or sets of properties, are denoted by the type et, t , meaning that a set of entities is mapped to a truth-value

to yield a sentence. An expression like “is a color”, for example, is such that it takes as input the entities in the set of colors (which have type et) and returns a truth-value.

And recursively, all the semantic types of the constituents of language can be derived (Gamut 1991).

Let’s see how the thesis applies to (3) and (39):

- (3) “The king of France is bald” says something about the king of France, namely that he’s bald. So, the topic is “the king of France” and the comment is “bald”: by **(M)**, the semantic type of the subject should be of type e , then, i.e., an individual entity. The semantic value for “is bald” would then be of type $\langle e, t \rangle$, that is, a set of individuals (specifically, of bald people). So, (3) is true iff the individual denoted by “the king of France” belongs to the set of bald people, and false otherwise. However, there is no such individual denoted by the description, therefore we cannot say whether it belongs or not to the set of bald people. So, (3) is neither true nor false.

In terms of Heim and Kratzer (1998), the compositionally derived truth-definitions of (3) will be:

$$\begin{aligned} \llbracket \text{The king of France} \rrbracket^M &= k \in D_e \\ \llbracket \text{bald} \rrbracket^M &= [\lambda x. x \in D_e \text{ and } \underline{\text{bald}}(x)] \\ \llbracket \text{bald} \rrbracket^M(\text{the king of France}) &= [\lambda x. x \in D_e \text{ and } \underline{\text{bald}}(x)](k) = \underline{\text{bald}}(k) = \\ &1 \text{ iff the king of France is bald.}^{45} \end{aligned}$$

- (39) “Frederik X is the king of France” says something about Frederik, namely that he is the king of France. So, the topic is “Frederik X” and the comment is “the king of France”: by **(M)**, the description will not have semantic type e , for it is not the topic expression. Therefore, it would take either type $\langle e, t \rangle$ or $\langle et, t \rangle$. Being “Frederik X”

⁴⁵In this and in the following definitions, we voluntarily overlook the issues which the definite article raises with respect to *uniqueness*. It would not be hard to adjust the definitions so to accommodate this aspect, but we have deemed it unnecessary for the purpose of this analysis, which just serves an illustrative purpose. Moreover, we follow here the standard treatment of the verb “is” provided in Heim and Kratzer (1998), according to which it is a *vacuous* constituent.

an individual entity, hence of type e , by compositional rules the comment “the king of France” has to take type $\langle e, t \rangle$: so, it is in this case a set of individuals, namely, those individuals which are king(s) of France. So, (39) is true iff Frederik X belongs to the set of individuals which are king(s) of France, false otherwise: however, such set is empty. Since no individual belongs to the empty set, the sentence is false.

Compositionally, the truth-definitions of (39) will be:

$$\begin{aligned} \llbracket \text{Frederik X} \rrbracket^M &= f \in D_e \\ \llbracket \text{The king of France} \rrbracket^M &= [\lambda x. x \in D_e \text{ and } \underline{\text{king-of-France}}(x)] \\ \llbracket \text{The king of France} \rrbracket^M(\text{Frederik X}) &= [\lambda x. x \in D_e \text{ and } \underline{\text{king-of-France}}(x)](f) = \\ &\underline{\text{king-of-France}}(f) = 1 \text{ iff Frederik X is the king of France.} \end{aligned}$$

So, thesis **(M)** can account for the difference in intuitions between (3) and (39); as a matter of fact, it succeeds in accounting also for the fact that (3), when uttered as an answer to the questions about notable bald figures, comes out as false, and no longer truth-valueless. As we have seen above, the topic in (3), in that context, is not the king of France, rather it is baldness: therefore, by **(M)**, “the king of France” will not have type e . “is bald”, on the other hand, still has type $\langle e, t \rangle$. By compositional rules, then, “the king of France” has to take type $\langle et, t \rangle$, that is, a set of sets of individuals, or a set of properties. So, (3) is true iff the property of being bald belongs to the set of properties instantiated by the king of France, and false otherwise. This set is, however, empty; since no property belongs to the empty set, (3) turns out to be false.

Compositionally, the truth-definitions of (3), in the context given by (65), will be:

$$\begin{aligned} \llbracket \text{The king of France} \rrbracket^M &= [\lambda P. P \in D_{\langle e, t \rangle} \text{ and } \exists y(\underline{\text{king-of-France}}(y) \wedge P(y))] \\ \llbracket \text{bald} \rrbracket^M &= [\lambda x. x \in D_e \text{ and } \underline{\text{bald}}(x)] \\ \llbracket \text{The king of France} \rrbracket^M(\llbracket \text{bald} \rrbracket^M) &= [\lambda P. P \in D_{\langle e, t \rangle} \text{ and } \exists y(\underline{\text{king-of-France}}(y) \wedge \\ &P(y))](\llbracket \lambda x. x \in D_e \text{ and } \underline{\text{bald}}(x) \rrbracket) = \exists x(\underline{\text{king-of-France}}(x) \wedge \underline{\text{bald}}(x)) = 1 \\ &\text{iff the king of France is bald.} \end{aligned}$$

Taking stock so far, following Felka: “it seems plausible to assume that our intuitions reflect the topic structure of the sentences in question.” (Felka

2015, p. 1406). What is lacking, anyway, is an answer to the question whether our intuitions do reflect presuppositionality, or lack of it, so that the sentences have the semantic value they seem to have, or that we'd be inclined to give to them. This answer is given by Felka via her thesis (**M**), which basically entails that "the dependence of presuppositionality on topic is due to the fact that it also depends on the topic structure of a sentence what the semantic function of its definite description is" (*ibidem*).

What emerges from the discussion above is that definite descriptions take different semantic values depending on the structure of the sentences in which they occur. This type-shifting feature is not a novelty in the literature: for different reasons and in different perspectives, this fact was already acknowledged by at least two authors. In Graff (2001), as we have seen, it is assumed that *predicative uses* of descriptions, exemplified in (3), take predicate-type value $\langle e, t \rangle$, as Strawson would have argued; moreover, she extends this position by claiming that *any* description, even the pre-copular ones, has this semantic type.

Barbara Partee, in Partee (1986), already observed that descriptions receive different semantic values depending on the linguistic context in which they occur. For instance, in a sentence like "The man and every woman walked into the room", the description has to take type $\langle et, t \rangle$, because the quantified expression has this semantic type and the conjunction only connects expression with the same type.

In conclusion of this subsection, we would like to point out a critical aspect in Felka's analysis: the account presented for the case of (39) presupposes that the only topic expression in the sentence is the referential item "Frederik X". However, this is not entirely clear: in fact, Strawson argues, in Strawson (1950) (and Graff (2001) reports this fact), that there is a sense in which a sentence like (39) is about *two* individuals, both Frederik X and the king of France. If that were the case, then two conclusions might be drawn: (i) that a sentence like (39) is as a matter of fact a simple *identity statement*, in which an operator = only binds individuals of the same semantic type, and not a predicative statement, as both Felka and Graff would conclude. And (ii) the sentence should turn out to be truth-valueless, in that the description, being the topic expression, would receive by thesis (**M**) type e . With respect to conclusion (i), we will say more in

the next chapter, in that we believe that a QUD-based approach to meaning could help understanding whether such sentences are identity or predicative statements. With respect to conclusion (ii), on the other hand, we do not see any possible way-out for accommodating this fact into Felka's account. It seems that she would be compelled to state a particular condition for predicatively used descriptions, because, if she accepted the "identity" interpretation, she would be forced to conclude that the sentence is truth-valueless. And this appears to be counter-intuitive.

1.4 Concluding Remarks

In this chapter, we have introduced (some of) the main arguments of this work, (in)definite descriptions and the semantics for questions, whose discussion does not add, admittedly, anything new in the philosophical literature. The introduction was needed, however, to hint at the possibility, in the light of what we have labeled "the conversational turn" in philosophy of language, of combining these two notions into a more comprehensive account of natural language utterances. In fact, following Stalnaker's works on assertions, sentences will always be evaluated in the background of a *context* of utterance, which contains the information which participants take for granted during the conversation, that is, pragmatic presuppositions. And, since conversation is centered in the resolution of a topic at-issue, i.e., an implicit or explicit *question*, we have sketched the most influential semantic account for questions, Groenendijk and Stokhof's partition theory; combining these two aspects will result in the QUD-based account of what is said by a sentence, defined by Schoubye and Stokke (2016), which will be presented in the next chapter.

We have additionally discussed some preliminary attempts of analyzing definite descriptions in the light of the question under discussion/*topic* they are addressing, but without the formalizations which we are going to employ later in the work. Strawson's aim was to show that the topic/comment structure of a sentence does play a role in eliciting truth-value intuitions with respect to empty descriptions; von Stechow argued, on the other hand, that the topic/comment structure is not sufficient, and that speakers' intuitions more consistently rely on the presence of other referential items in

the sentential environment which could be used as *footholds for verification*. von Fintel's account, however, has been in turn criticized, for it seems to ascribe to speakers a series of "logical powers" which intuitively we would not ascribe to them.

Since intuition is a Strawsonian insight that we would like to preserve in the work, we have also introduced Felka's thesis (M), whose aim was to nourish Strawson's observations on topicality with a more formal linguistic description, based on formal semantics. According to Felka, a definite description receives different semantic types depending on the structure of the sentence in which it occurs, and the difference in semantic types leads to the difference in truth-value intuitions which is reported in the literature. However, we have pointed at a possible problem in Felka's account, with respect to predicatively used description, and which, contrary to her desire, does not match Strawson's intuitions. It should be noticed that, in our analysis, we have not checked whether Felka's account predicts the correct truth-value intuitions with respect to the sentence "The Exhibition was visited by the king of France". The author herself does not present such analysis, but we can reasonably assume that predictions would have been confirmed.

The issues discussed in this chapter do represent the starting point for our discussion. Drawing an arch starting from Russell's Theory of Descriptions – the middle point being Stalnaker's notion of assertions and Groenendijk and Stokhof's partition theory – and ending on Felka's account on definite descriptions as topic expressions, we can conclude that the project of a formalization of descriptions as answers to a question under discussion is tenable. This project will be presented in the following chapter.

CHAPTER II

QUESTIONS UNDER DESCRIPTIONS

In the last section of the previous chapter, we have observed that definite descriptions have been analyzed under new perspectives of study; with the help of concepts borrowed from the linguistic literature, Strawson has justified the falsity intuitions with respect to a sentence like “The Exhibition was visited by the King of France” by appealing to the fact that, in this sentence, the worrying description is not the *subject-term*, therefore not eliciting the feeling of squeamishness which arises upon reading a sentence like “The king of France is bald”, that has the empty description as subject-term.

Later analyses (Von Fintel 2004; Lasersohn 1993) have argued that Strawson’s observations are not entirely correct in their prediction, for it can be seen that a sentence like “Let me tell you about my friend, the king of France. I had breakfast with him this morning”, which is invariably *about* the French monarch, does not give rise to those squeamish feelings. And both authors, even though the declination of their motivations is slightly different, justify this claim by saying that any sentence containing empty descriptions is evaluated with respect to an available body of information (Von Fintel 2004), or with respect to some background knowledge (Lasersohn 1993). The upshot of this discussion is that speakers tend to adopt certain pragmatic fall-back strategies for accepting – or rejecting – those par-

ticular statements; and, as it was mentioned, the experimental literature in linguistics has supplied von Fintel's and Lasnik's theoretical positions with some empirical confirmation (Abrusán and Szendrői 2013).

Within the body of information defined by von Fintel, what plays the major role in evaluating empty descriptions is a *contextually salient entity*; which, in the case of Strawson's example, is exemplified by the Exhibition. Even though salience is not entirely comparable to the notion of *Question under Discussion*, it is quite unavoidably linked to it, as well as to the notion of topic (see the second section of the previous chapter). This link motivates the discussion which will be conducted in this chapter. It is our belief that the Question under Discussion approach to meaning has the unquestionable merit of formalizing the study of natural language sentences by comprising both a semantic analysis and an investigation of the *pragmatic* elements which intervene on their evaluation.

The most interesting formalization of a QUD-based approach of meaning is Schoubye and Stokke (2016). In the next sections, we will observe how this theory has been applied to the study of empty descriptions (Schoubye 2009); later in the chapter, we will also observe how it can be applied to the analysis of indefinite and predicative descriptions. The application of such QUD-based approach is different for each kind of descriptions we are going to analyze:

- When applied to empty definite descriptions, a QUD-based theory can account for the different truth-value intuitions that can be elicited upon reading such problematic sentences;
- When applied to indefinite descriptions, a QUD-based theory can explain how implicatures are generated, upon hearing a referentially used description like "A playboy is flirting with your sister";
- When applied to predicative descriptions, a QUD-based theory appears to be a suitable criterion for distinguishing this kind of descriptions from the two Donnellanian's attributive and referential cases.

Before proceeding to the application of the QUD-based approach to meaning to descriptions, it is mandatory for us to define such theory in a more perspicuous way.

2.1 A QUD-based Approach to Meaning

The motivation behind the development of the account presented in Schoubye and Stokke (2016) (from now on, S&S) is to engage with problem of *linguistic under-determination*: there are several sentences in natural language which cannot receive a truth-value, if not “saturated” with some extra component to be found outside their syntactic structures and compositional meanings. Cases in point are represented by the following sentences:

- (71) a. Bob is tall enough
 b. Steel is strong enough
 c. Mike is ready
 d. The king has arrived

(71a), depending on factors which lie outside its compositional meaning or syntactic structure, can mean different things: “Bob is tall enough to join the army”, “Bob is tall enough to play basketball”, etc. And the same can be said for (71b-d). According to the position held by *Contextualism* (see, among others, Sperber and Wilson (1986), Searle (1980)), these sentences constitute examples of *propositional fragments*, which are in need of some kind of completion. This completion is different from the one supported, for example, by the resolution of context-sensitive expressions like *demonstratives* or *indexicals*: the content of these sentences has to be derived thanks to elements which are beyond this domain.

According to another view called *Semantic Minimalism*, chiefly advocated by Cappelen and Lepore (2008), all the sentences in (71) are actually propositional *wholes*, which therefore have a truth-conditional content without any completion. Their truth-conditions will simply be disquotational:

- (72) a. “Bob is tall enough” is true iff Bob is tall enough.
 b. “Steel is strong enough” is true iff steel is strong enough.
 c. “Mike is ready” is true iff Mike is ready.
 d. “The king has arrived” is true iff the king has arrived.

This position is highly unsatisfactory, and not at all illuminating. However, Cappelen and Lepore argue that also standard propositional wholes’s truth-conditional content can vary among contexts; this fact is sustained by S&S, but this does not force them to conclude that Minimalism is right. On

the contrary, the account presented in Schoubye and Stokke (2016) shows that there is a “principled and systematic way of pairing sentences with their intuitive truth conditions in context while maintaining that, for any sentence, these truth conditions can vary across contexts.” (*ibidem*, p. 765).

This principled and systematic way consists in identifying “what is said” by a sentence in a context (its truth-conditional content relative to the context of utterance) with answers to *Question(s) under Discussion*. The context of utterance will be taken to contain questions as formal objects, so that sentences can be evaluated – truly or falsely – relative to them. But still, the truth-conditions of sentences will still be constrained by compositionality, namely, they will have a *minimal content* which will be related to the truth-conditional one in a principled way that we are going to see. The rationale behind this assumption is that it is true that meanings can vary depending on the QUD(s), but still the set of truth-conditions will depend on the compositional meaning of the sentence. The relation between minimal content and “what is said” saves S&S from embracing the disquotational account.

The QUD-based approach to “what is said” (from now on, WiS) originates from two previous linguistic and semantic frameworks: one is that developed by Craige Roberts in Roberts (2012), which, remodeling the account of assertions in Stalnaker (1978), conceives discourses as goal-oriented activities whose purpose is to discover how the actual world is. The information which is taken for granted by the participants at the discourse constitutes the *common ground*, and assertions belonging to the discourse activity are interpreted in terms of information *updating*. So, to assert the proposition φ is equivalent to propose to make it common ground.¹

The notions of common ground and proposition are defined set-theoretically; the common ground is defined as the set of propositions *taken for granted* by the participants at the discourse, like presuppositions, while propositions are the sets of possible worlds where the propositions are true. So, when someone asserts the proposition φ , the proposition is added to the common ground and the context-set, which is the set of worlds in which all

¹We do not want to foreshadow elements of discussion which will be at the center of the last chapter of this work, but we want to notice that the very usage of the term “updating” winks at a dynamic semantics framework in an irrefutable way.

the propositions of the common ground are true, is updated “by removing the worlds in which this proposition is false and by keeping the worlds in which this proposition is true” (Von Fintel 2008, p. 138).

Assertions are “choices among alternatives. [...] The relevant alternatives are those proffered by the question, or topic, under discussion” (Roberts 2012, p. 6). So, assertions are answers to the QUD(s), which have been previously accepted by the participants at the discourse; answering is then one of the – if not the principal – strategy to follow, to achieve the goal of the discourse as defined above, namely, discovering how the actual world is.

The second framework underlying the QUD-based account is the semantics of questions; we have already discussed, in the first chapter, the features of Groenendijk and Stokhof’s partition theory (Groenendijk and Stokhof 1984), therefore we will not repeat it in detail here. However, there is another semantics for questions which is taken into consideration in Schoubye and Stokke (2016), which is Hamblin’s *alternative semantics* (Hamblin 1973), whose features we are going to briefly define.

Questions, as we already know, are generally distinguished between two main categories: *polar questions*, which are addressed by a simple *yes/no* answer, and *wh-questions*, basically those beginning with an interrogative adjective (or pronoun). Examples of such questions are given below:

(73) Is Carlo in Genoa?

(74) Who killed Laura Palmer?

In Hamblin’s formulation, the denotation of a question is the set of its possible answers, namely, the set of its *alternatives*. For a *wh*-question like (74), the set of its alternatives consists in the set of propositions which are obtained by *lambda-abstraction* over the *wh*-constituent, and then applying the predicate, “abstracted” over possible worlds, to the entities belonging to the domain of discourse. The meaning of (74) will then be as follows:

(75) $\{\{\lambda w.\text{Bob killed Laura Palmer in } w\}, \{\lambda w.\text{James killed Laura Palmer in } w\},$
 $\{\lambda w.\text{Lawrence killed Laura Palmer in } w\}, \dots\}$

The alternatives of a polar question like (73), on the other hand, are just the *yes*-alternative and the *no*-alternative:

(76) $\{\{\lambda w. \text{Carlo is in Genoa in } w\}, \{\lambda w. \text{Carlo is not in Genoa in } w\}\}$

By appealing to the notion of alternatives, it is possible to determine whether an answer to a QUD is *partial* or *complete*:

- A **partial** answer to a wh-question q is a proposition that entails an evaluation (either true or false) of *at least one* alternative of q .
- A **complete** answer to a wh-question q is a proposition that entails an evaluation (either true or false) of *every* alternative of q .²

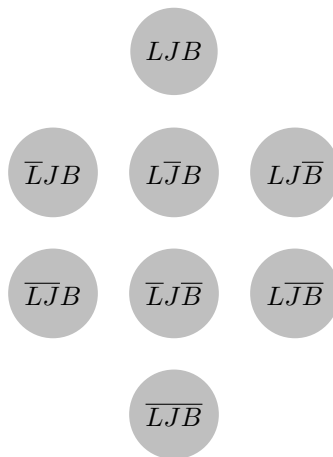
The notion of answerhood is defined in terms of wh-questions in that they can be seen as proxies for a list of (possibly infinite) sub-polar questions. If we take (74), for example, we can imagine it as equivalent to:

- (77) a. Did Bob kill Laura Palmer?
 b. Did James kill Laura Palmer?
 c. Did Lawrence kill Laura Palmer?
 d. ...

So, a proposition which entails a *yes* (or *no*) to any polar sub-question of q is a complete answer to q ; if it entails an answer to at least one polar sub-question, it is a partial answer (it is immediate to see that any complete answer is also a partial answer).

For showing how a QUD-based account of WiS presents itself, we introduce the following picture. In Groenendijk and Stokhof's fashion, we take the set of complete answers to a question as a logical partition on a set of possible worlds. Consider again the wh-question "Who killed Laura Palmer?", and assume that the domain of discourse only contains three individuals, Bob, James and Lawrence. Let B, J and L stand for the propositions that Bob killed Laura Palmer, James killed Laura Palmer, and Lawrence killed Laura Palmer, respectively. Therefore, the logical space of these proposition will be represented as follows.

²Schoubye and Stokke (2016, p. 767)



Now, take the two possible answers to the above question:

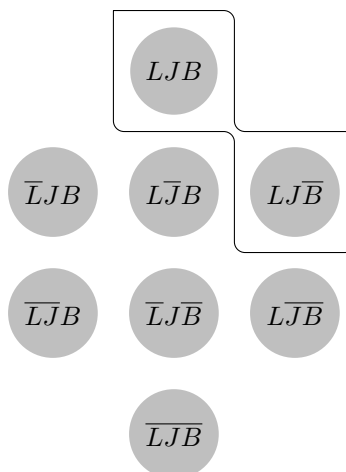
(78) Lawrence and James killed Laura Palmer

(79) Only Bob killed Laura Palmer

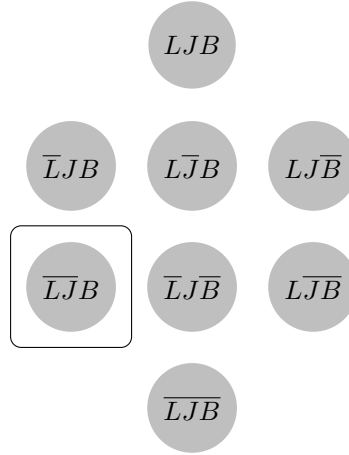
(78) is a partial answer, in that it rules in the worlds where Lawrence and James did kill Laura Palmer, but it leaves the Bob-alternative unevaluated.

(79) is a complete answer, because it rules in a unique cell, thus entailing an evaluation of every other alternative. Pictorially, the answers are represented as follows:

(78) Lawrence and James killed Laura Palmer



(79) Only Bob killed Laura Palmer.



As we were anticipating, a peculiar feature of the QUD-based account of WiS is that it comprises both the semantic and the pragmatic aspects of natural language sentences. Until now, we have focused on the semantic foundations of this account, therefore, before providing a full-fledged definition of the framework, some pragmatic principles have to be laid down.

As stated above, discourse is interpreted as a question-answer exchange among the participants, whose aim is to resolve the question(s) under discussion. There are different ways to attain this goal, that are what Craige Roberts call *strategies of inquiry*: a strategy, or a proper conversational move, could be “segmenting the QUD into various subquestions and then addressing these individual subquestions in turn” Schoubye and Stokke (2016, p. 770). Since any participant is committed to the resolution of the QUD, there is only a limited number of cooperative moves that one can entertain, in order to provide an answer. One constraint is *relevance*:

Definition: A move m is relevant to the question under discussion q iff m either introduces a partial answer to q (m is an assertion) or is part of a strategy to answer q (m is a question).

If participants are cooperative and rational agents, the only strategical moves available consist in either answering a subquestion of q or raising new questions.

One could argue that, more often than not, questions are not explicitly stated in the discourse. However, there are numerous contextual cues one can bring up for raising a question; one of the examples discussed in Roberts (2012) is *prosody*. It is traditionally assumed that a sentence is a felicitous answer to a (wh-question) q iff the focused part of the sentence corresponds to the wh-constituent(s) of the question: this assumption is what we have labeled in the first chapter as *question-answer congruence*. Consider the following focused answers to (74):

- (80) a. [Bob]_F killed Laura Palmer.
 b. # Bob killed [Laura Palmer]_F.

If one utters (80a), it is entailed that the QUD is indeed (74); on the other hand, an answer like (80b) is infelicitous with respect to (74), in that the correspondence between the focused part and the wh-constituent of the question is missing. Therefore, as Roberts (2012) concludes, prosodic focus presupposes the question under discussion. This conclusion implies that an assertion of a declarative sentence does raise a question *via* accommodation; if a sentence S triggers a presupposition p , it is necessary that p is common ground. If not, an assertion of S would be infelicitous. But, if the presupposition can be included in the common ground because it is consistent with it, the participants will agree to adjust the common ground so to include p , that is, they will accommodate it. The process of accommodation is crucial both for the present account and for the one we are going to present in the last chapter: but this will be observed in due time. In the same way, if one utters a sentence with a certain prosodic focus, thus presupposing a question, the participants may accommodate the question as well.

One last assumption needs to be provided, before finally sketching S&S's definition of WiS; as stated above, in their account the minimal content of declarative sentences, which is given by the meaning of their constituents and their mode of composition, is fundamental. The content deriving from this compositional procedure is the *minimal proposition* expressed by a sentence S in a context c . Let $\mu_c(S)$ denote the minimal content expressed by S relative to c , and $\sigma_c(S)$ will denote WiS by S relative to c and the QUD q_c .

Minimal Content Constraint. What is said by a sentence S relative to a context c and a question q_c must entail the minimal content of S in c (i.e., $\sigma_c(S) \subseteq \mu_c(S)$).

In addition to that, we need a method for choosing *properly* the propositions that entail the minimal content of the relevant sentence. This is given by the following definition:

Propositional Strength. Given two propositions φ and ψ , φ is weaker than ψ iff ψ asymmetrically entails φ (i.e., $\psi \subset \varphi$).

WiS. What is said by a sentence S relative to a context c and a QUD q_c is the weakest relevant proposition φ such that φ entails the minimal content of S in c .

Recall that “relevant proposition” here substantially means “answer”. The truth-conditions of a sentence relative to a context and to a question come from the union of any non-empty proper subset of the partition on q_c , among which we have to select the weakest one which entails the minimal content.

Before observing this definition at work by applying to a concrete example, a clarification is in need: as Schoubye and Stokke themselves argue, the definition is incorrect, because it has unwelcome predictions. As Bach (2004) pointed out, the following sentence (81) can be used to convey sentence (82):

(81) You’re not going to die.

(82) You’re not going to die from that cut.

What the present account would conclude – and what common sense seems to force us to conclude – is that (82) is what is said by (81). However, a problem arises: if WiS entails the minimal proposition, S&S’s account predicts that, for (82) to be what is said by (81), the minimal proposition in (81) needs to be entailed by (82). But it seems that, in this case, the opposite is true.

There is a straightforward solution to this problem;³ “instead of the requirement that what is said entails the minimal content, the requirement

³The source of this problem is *negation*: negation reverses the entailment relations and,

should simply be that what is said must either entail, or be entailed by, the minimal content” (Schoubye and Stokke 2016, p. 783).

WiS (revised). What is said by a sentence S relative to a context c and a QUD q_c is the weakest relevant proposition φ such that φ either entails or is entailed by the minimal content of S in c .

Lastly, with this definition of WiS, also sentential truth can be defined:

Truth. A sentence S is true in w_c relative to a context c and a question q_c iff $w_c \in \sigma_c(S)$, where w_c is the world of the context.

Now we can observe how these definition fare with sentences like those in (71), namely, the propositional fragments. Take in particular (71b), repeated below:

(71b) Steel is strong enough.

Consider the following dialogue (Schoubye and Stokke 2016, pp. 776–778):

Mike: The space shuttle must be able to carry 35 tons of cargo, endure extreme temperatures, and be capable of withstanding severe cyclonic dust storms. So, what material for the shuttle is sufficiently strong?

Carl: Steel is strong enough.

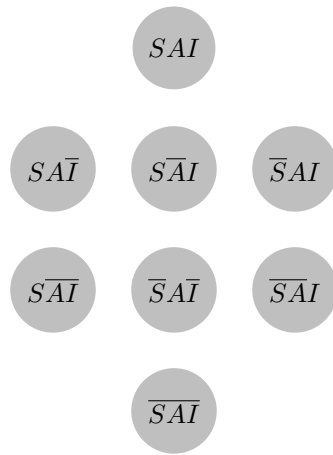
Mike is asking the question “What material for the shuttle is strong enough for carrying 35 tons of cargo, enduring extreme temperatures, and withstanding severe cyclonic dust storms?”; therefore, on an intuitive level, what Carl says is the minimal content of (84):

(84) Steel is strong enough for carrying 35 tons of cargo, enduring extreme temperatures, and withstanding severe cyclonic dust storms.

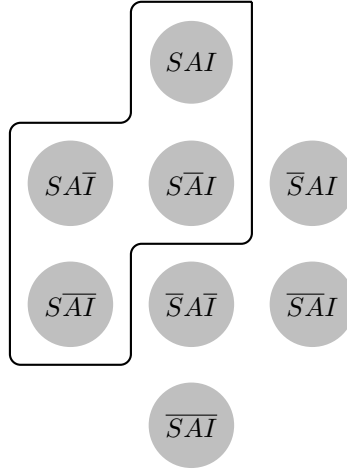
By assuming that the only elements in the domain are steel, aluminum and iron, we take S , A and I to be the minimal proposition that steel, aluminum

as a consequence, a definition of WiS is doomed to make wrong predictions with respect to negated sentences. The same problem arises when the “underdetermined” part of the content lies within the scope of a *downward entailing operator* which, by definition, reverses the relation of propositional strength as it has been defined above.

and iron, respectively, are strong enough for carrying 35 tons of cargo,
The situation is depicted as follows:



The present theory should predict that there is a difference between the minimal content of Carl's utterance, and what is said by Carl relative to the question asked by Mike. So, what is said by Carl relative to the question has to be one of its possible answers, that is, it must be relevant. So, it has to be a proposition which rules in at least one (but not all) cell of the partition above. This proposition, however, also has to entail the minimal content of (71b). Clearly, any proposition ruling in a $\bar{S}$ -cell will not do this; so, only propositions that rule in S -cell can be picked. Lastly, we have to pick the weakest of those. The weakest relevant proposition will simply be "the union of the set of all S -cells as this will be a superset of any other answer (that does not include any $\bar{S}$ -cell)" (Schoubye and Stokke 2016, p. 778). So, we arrive at the figure below:



This figure depicts the intuitively correct result. So, thanks to this QUD-based analysis of WiS, also propositional fragments' meaning can be accounted for, if evaluated with respect to a Question under Discussion and a context.

The presentation of S&S's account is sufficient, for the time being. In the next subsections, we will apply this approach to the study of descriptions, and show how it can be fruitful in highlighting some of their peculiar aspects.

2.1.1 QUD and Definite Descriptions

Even though the QUD-approach, as intended by Schoubye and Stokke (2016), is not directly applied to the study of definite descriptions, a previous work by Schoubye moved towards that direction; in this article, the author, dealing with the conflict in truth-value intuitions with respect to empty definite descriptions, argues that "intuitions of falsity elicited from sentences suffering from existential presupposition failure are a result of evaluating the content of the sentences in relation to a contextually salient question" (Schoubye 2009, p. 585).⁴ The upshot is that falsity is elicited, in speakers' minds, because of the un-satisfaction of the conversational constraints

⁴We'd like to point out, here, the similarity between what Schoubye calls the "contextually salient question" and what von Fintel, in Von Fintel (2004), calls the contextually salient entity.

we are bound to in the interrogation process; this conclusion has a strong Strawsonian fashion, whose intuitions the author wants to preserve.

There are several cases of empty definite descriptions (in Schoubye (2009)'s terminology, **SWEPPs**, **S**entences **W**ith **E**xistential **P**resupposition **F**ailure) whose judgment vary depending on different elements. In these examples, the hashtag signifies truth-valuelessness, or better Strawson's *squeamishness*, where ^F stands for falsity:

- (3) # The king of France is bald.
- (85) ^F The king of France is a bald nazi.
- (86) # The king of France heard about Goldbach's conjecture.
- (87) ^F The king of France proved Goldbach's conjecture.
- (88) # The king of France always enjoys a croissant in the morning.
- (89) ^F The king of France always enjoys some human flesh in the morning.
- (90) # The king of France is [bald]_F.
- (91) ^F [The king of France]_F is bald.

(3-85) seems to be discriminated by the presence of the word "nazi"; (86-87) are differentiated by the verb involved, whereas in (88-89) it is the direct object to make intuitions change. Lastly, in (90-91), the crucial element is intonational stress. So, the phenomenon is pervasive, and the task of a unified account appears to be extremely challenging.

As we have already seen, various theories in the literature have been developed, whose aim was to account for this variation in the intuition; we have discussed von Fintel's foothold for verification strategy, as well as Lasersohn's background knowledge theory. These theories conclude that, if speakers can adopt some strategies for arriving at a truth-value, hence for accommodating the troublesome presuppositions, then there is an intuition of falsity; otherwise, the sentence will elicit squeamishness. But it seems that these theories still cannot account for all the variations.

If it is true that nothing falsifies or verifies (3), it is equally true that nothing verifies or falsifies (85); therefore, von Fintel's account cannot predict that variation. And the same goes for the pair (88-89), for example. The point is that, from a theoretical point of view, von Fintel's theory entertains the position according to which the procedure of belief revision is readily

accessible to speakers: in other words, speakers should be assumed to have the belief that, in the case of (85), “The king of France is not a nazi”. This is untenable (for further discussion about the shortcomings of von Fintel’s theory, see the previous chapter and Rosola (2021)).

Moreover, even holding the view that the body of beliefs does not change, there is still no explanation of the fact that **SWEPPs** can elicit squeamish intuitions when considered in isolation, while eliciting falsity in a defined context. So, the purpose of Schoubye is to examine the behavior of **SWEPPs** against a context. Consider (3) and (88), repeated below, which, uttered out of a context, elicit an immediate feeling of squeamishness:

(3) #The king of France is bald.

(88) #The king of France always enjoys a croissant in the morning.

But notice how things can change, if a suitable scenario is proposed (Schoubye 2009, p. 593):

(92) **Context I**

The famous hair-dresser, Pierre, is organizing a fashion show, where the hair-models are all European royalty. Incidentally, minimalism is the new black in hair-style fashion, so Pierre is trying to determine whether he can convince some royalty to go bald for the show. As he’s deliberating, he turns to you and his other assistants and says: “I can’t think of any royal who would agree to go bald just for the sake of the fashion show, and I can’t think of any who is already bald. You guys get on this immediately. Whoever finds a solution gets to go to the fashion show.” Another assistant standing next to you exclaims: “The king of France is bald”.

(93) **Context II**

A salesman from the company Froggy Croissants is attempting to persuade you that your high-end bakery should start selling croissants from Froggy Croissants. You’re sceptical and say: “The problem is this. Our customers are primarily wealthy snobs with poor taste who only buy products which are trendy or hip. So, unless Paris Hilton or some other celebrity is eating croissants on a regular basis, we won’t be able to sell them”. The salesman retorts: “I take your

point, but you see, our product is extremely popular in France. For instance, the king of France always enjoys a croissant in the morning”.

It seems that, in the light of these two scenarios, (3) and (88) no longer elicit feelings of truth-valuelessness, rather they seem to robustly trigger intuitions of falsity. Why do intuitions change? The answer is that falsity intuitions result from evaluating the content of a **SWEPF** in relation to a contextually salient question. “In particular, if a **SWEPF** is evaluated as a *consonant* response to a contextually salient question and the relevant question has true answers, the **SWEPF** is judged false” (*ibidem*, p. 595). Consonance is then a conversational condition that has to be met (or not met) for **SWEPFs** to elicit truth-value judgments.

We have seen that the semantic analysis of questions that we have discussed, Groenendijk’s partition theory, Hamblin’s alternative semantics, as well as Krifka’s *structured meaning approach* (Krifka 1991), are classical in nature; questions are either sets of propositions which constitute the possible answers (Hamblin, Groenendijk and Stokhof), or either they are functions from individuals to truth-values (Krifka). And since answers are defined in terms of relevance, no relevant conversational moves can include **SWEPFs**. This is due to the fact that empty descriptions are not mapped to individuals in a model, so any assertion containing them cannot be members of answer sets. To overcome this technical issue, the new notion of consonance enters into play.

Definition: A conversational move *m* is *consonant* iff:

- the speaker intends to answer a QUD,
- the speaker could reasonably be interpreted by the interlocutors as intending to answer the QUD,
- if the presuppositions of the relevant assertion were accommodated, the assertion would provide a (direct or indirect) answer to the QUD.

So, for a move to be consonant, it is not mandatory for it to provide an answer to the QUD; what is required is that the conversational move could be interpreted as an *attempt* to answer, and that, if its presuppositions were accommodated, it would either entail or implicate a proposition/individual contained in the answer set. For example:

(94) Who ate the braised short ribs?

- | | |
|---------------------------------------|-------------------------------------|
| a ₁ Mary. | +relevant/ +consonant/ +appropriate |
| a ₂ Mary is a vegetarian. | +relevant/ +consonant/ +appropriate |
| a ₃ I don't know. | –relevant/ –consonant/ +appropriate |
| a ₄ Mary jumped the fence. | –relevant/ –consonant/ –appropriate |

There is a sense in which consonance is an even more pragmatic notion than that of relevance; if a *relevant* conversational move must give an answer, a consonant one need not. There is relation between a speech act, its content, and a given QUD, and consonance captures this relation (Schoubye 2009, p. 598). It is undoubtful that there are certain assertions containing non-denoting terms which can still be considered answers to a QUD, even though they are not genuine/relevant one. To better understand the situation, suppose that we are discussing about who proved Golbdach's conjecture. If one says that the mathematician who proved the conjecture is a woman, there's a sense in which this assertion is acceptable, cooperative, and addressing the QUD. At the very least, here, the problem is that the discourse is defective, but still, the assertion is perfectly sound with respect to the question under discussion. This is an extremely powerful insight, in our opinion; adding consonance to the framework permits to encompass even more aspects of everyday discourse, and in this spirit we will extend these observations in the last chapter, when we are going to study descriptions in the framework of dynamic semantics.

According to Schoubye, **SWEPPs** elicit falsity judgments only when they satisfy the following conditions:

- (i) The SWEPP is interpreted as a *consonant conversational* move as regards the QUD or a subquestion to the QUD.
- (ii) The relevant QUD has true answers.

This is the *False Intuition Hypothesis* (**FIH**). An assertion containing a **SWEPP** will never be a relevant assertion, for it will not be pointed towards the resolution of the question under discussion; however, if it is consonant, it can be at least considered a rational and cooperative attempt to answer it. Let us see, now, how **FIH** can explain the change in truth-value intuitions with respect to sentence (3), when uttered in the hair-dresser scenario. In that scenario, we can infer that the question under discussion is something like

“Who would agree to go bald for the fashion show?”: in the light of this question, the response is a purported answer, it is intended as a purported answer, hence it is a consonant move. The conditions of **FIH** are satisfied, so the sentence elicits falsity. This is exactly the expected prediction, and it represents an improvement on the prediction expected following Strawson’s observations. *Mutatis mutandis*, the same conclusion holds for the bakery scenario above.

In the light of these observations, and in the light of the question-answer congruence principle that we have discussed in the previous section, we can observe how focus and the False Intuition Hypothesis are intertwined, when we try to evaluate **SWEPFs**. Consider (90-91), repeated below:

(90) # The king of France is [bald]_F

(91) ^F [The king of France]_F is bald

(90) is most naturally understood as an answer to a question like “What is the king of France like?”, whereas (91) represents an answer to “Who is bald?”. In the case of (90), it has to be noted that the discourse is defective, in that it revolves around a question with an empty description; condition (i) of the **FIH** hypothesis is satisfied, but condition (ii) is not, in that the question has no true answers. Therefore, as the hypothesis predicts, the assertion turns out to be squeamish, not false. On the contrary, in the case of (91), the discourse is not defective; the answer can be intended to be a purported answer, also by the hearer, hence being a consonant move, and moreover the QUD has true answers. So, by *FIH*, the sentence should elicit intuitions of falsity; and this appears to be exactly the case.

Much more should be said about Schoubye’s paper. However, we believe that what we have discussed so far suffices for highlighting the advantage of a QUD-based approach of meaning applied to (empty) definite descriptions. With the help of the notion of consonance, such approach is able to predict the varying truth-value intuitions speakers have when confronting with those assertions. We hope that the sophistication of this approach has transpired; we will never get tired of saying that the project of unifying semantic and pragmatic facts, in a full-fledged theory, is always a creditable task.

2.1.2 QUD and Indefinite Descriptions

In this subsection, we propose to investigate the behavior of the uses of indefinite descriptions we have sketched in the first chapter within the framework of the QUD-based approach of WiS. What it will show, hopefully, is that the framework has the formal elements for justifying the generation of the *conversational implicatures* which occurs, upon hearing those peculiar kind of sentences. For ease of reading, we will repeat below the definitions of each use of indefinite descriptions, together with the examples we have cited in correlation to them.

Referential Use. An indefinite description “a(n) *F*” is being used *referentially* in an utterance of “An *F* is *G*” iff (i) the speaker intends to communicate something about a particular individual *i*, and (ii) the speaker is using “an *F*” intending that her audience shall realize that it is *i* that she intends to communicate something about.

Specific Use. An indefinite description “A(n) *F*” is being used *specifically* in an utterance of “An *F* is *G*” iff (i) the speaker has (singular) grounds for an assertion of the form “An *F* is *G*”, but (ii) she does not intend to communicate a singular proposition.

Definite Use. A description “a(n) *F*” is used *definitely* in an utterance of “a(n) *F* is *G*” iff (i) the speaker’s grounds for her utterance are furnished by the non-singular belief that the unique *F* is *G*, and (ii) the speaker intends to communicate that the *F* is *G* (or at least intends to communicate that some such non-singular belief furnishes the grounds for his utterance).

Let us go back to the referential scenario: I am at the bar with you and we both notice Barney, whom we know to be a playboy. Seeing Barney flirting with your sister, I utter (25):

(25) A playboy is flirting with your sister.

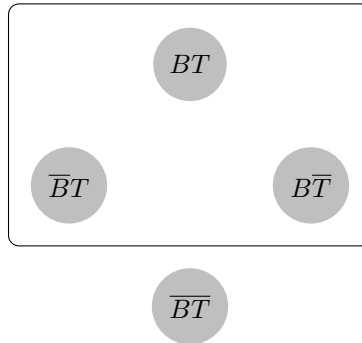
The common ground for this assertion is that Barney is at the bar, and that he is a well-known playboy. The speaker’s ground for uttering (25), on the other hand, is that the *particular* individual Barney is flirting with your

sister; *if* this fact is accepted by the hearer, then this singular belief enters the common ground.

The minimal content of (25), given by the meaning of its constituents and the way they are combined, is the quantified proposition that a playboy is flirting with your sister. (25) is not focused *per se*, therefore it does not immediately presuppose a particular Question under Discussion; however, it seems that the most natural way to interpret (25) is that the speaker intends to convey the *new* information that there is a playboy, who is flirting with the hearer's sister. In the light of this, we can assume that (25) is actually (25'):

(25') $[A \text{ playboy}]_F$ is flirting with your sister.

Given this focused structure, the Question under Discussion turns out to be "Who is flirting with your sister?". We assume that the domain of discourse only contain two individuals, Barney and Ted, and we let B and T stand for the propositions that Barney is flirting with your sister and Ted is flirting with your sister, respectively. Pictorially, the situation is the following:



Among the possible answers to the Question under Discussion, WiS by (25) should be the weakest relevant proposition such that it either entails or it is entailed by the minimal content. This means that what is said by that sentence actually *coincides* with the minimal content of (25), namely, that a playboy is flirting with your sister.

We have specified, above, that there is a *proviso* for uttering this sentence with a referential reading, namely, that the hearer has to accept the fact that

there is a singular belief entertained by the speaker according to which it is Barney who is flirting with her sister. However, this does *not* happen, in that the context makes clear that the only person seeing Barney flirting is the speaker. Therefore, the common ground cannot be updated with the singular proposition, hence the *referential intentions* of the speaker cannot be accounted for.

What is happening here (and what will happen, *mutatis mutandis*, in the other cases) is that there's a violation of the pragmatic conditions of WiS; the speaker, in fact, is behaving *under-informatively*, in that, notwithstanding the fact that she has access to a singular proposition about Barney, she has decided to utter a general proposition about "a playboy". This violates the Gricean Maxim of Quantity, according to which a speaker has to make her contribution as informative as is required, no more and no less (Grice 1975; Grice 1991). This violation renders the speaker not *cooperative*, therefore she cannot be assumed to be rational in the discourse exchange, hence her move cannot be considered fully relevant. But, Grice argues, if we assume that all the participants at the discourse are rational and cooperative, that the speaker has grounds for uttering a particular sentence, but nonetheless decides to behave under-informatively, then a *conversational implicature* is generated.

"Proposition *q* is a *conversational implicature* of utterance *U* by agent *A* in context *C* if, and only if (a) it is mutual, public knowledge of all the discourse participants in *C* that *A* is obeying the Cooperative Principle; (b) in order to maintain (a), it must be assumed that *A* believes *q*; and (c) *A* believes that it is mutual, public knowledge of all the discourse participants that (b) holds" (Potts 2015, p. 17). Quite roughly, the implicature that it is generated upon hearing the sentence "A playboy is flirting with your sister" is something like "A playboy is flirting with your sister, but I don't want to tell you who he is, because we both know him", or I could be *ironic*, assuming that the hearer can infer from the speaker's assertion that it is Barney she is talking about, since they both know he is a playboy and they have both seen him at the bar.

Can we describe the process according to which the hearer generates the implicature, in the light of the QUD-based approach to meaning? We know that the common ground consists in the fact that: (i) the speaker and the

hearer see Barney, and (ii) they both know he is a well-known playboy. After the speaker sees Barney flirting with the hearer's sister, he utters (25); in saying this sentence, he is proposing to add to the common ground the general proposition according to which a playboy is flirting with her sister, thus eliminating the worlds in which nobody, or someone who is not a playboy, is flirting. And this is exactly the situation depicted in the figure above. But there is a further step: the speaker wants the hearer to restrict further the common ground, but she is not doing this explicitly, for one of the reasons mentioned above (or for some other). This generates the implicature which the hearer could be able to derive, under the assumption that they are all rational conversational agents.⁵

Consider now the specific use of indefinites: we are walking down the street, and you notice that there is an enormous graffiti on a wall. You ask me who did that, and I reply with (28):

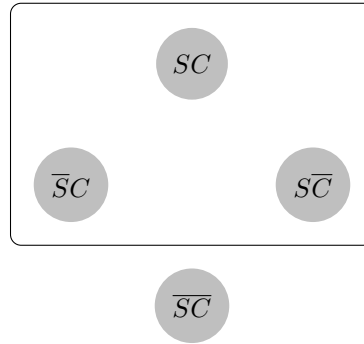
(28) A friend of mine did it.

In this case, the context presented makes already clear that the Question under Discussion is "Who did the graffiti?", therefore we can assume that (28) is actually uttered with the following intonational stress:

(28') [A friend of mine]_F did it.

The minimal content of (28) is the general proposition that a friend of mine did the graffiti. We take our domain of discourse to contain only two street artists, Spike and Carl, and let *S* and *C* stand for the propositions that Spike did the graffiti and that Carl did the graffiti, respectively. Pictorially, the situation is as follows:

⁵According to Ludlow and Neale (1991), it is crucial, in the case of referentially used indefinite descriptions, to distinguish between the *speaker's grounds* and the *speaker's intentions* (Kripke 1977); it seems that the implicature is generated, even though the referential intention of the speaker cannot be grasped by the hearer. On the other hand, under the assumption that speakers are cooperative and rational, we could hypothesize that the grounds for the assertion are accepted.



Among the possible answers to the question under discussion, what is said by (28) ought to be the weakest relevant proposition such that it either entails or is entailed by the minimal content. This means that, once again, what is said by the sentence coincides with its minimal content, that is, that a friend of mine did the graffiti. As it is stated in the very definition of the specific use of indefinite descriptions, the speaker does *not* intend to communicate a singular proposition in the first place, for whatever reason, even though he has a particular individual in mind, thus generating an implicature. Once again, we assume that the speaker's grounds are "taken for granted", in that the participants at the discourse are taken to be rational and cooperative. The assertion entering the common ground is precisely the one depicted above, namely, that a friend of mine did the graffiti; but, with the cooperativity assumption, the hearer can understand that the speaker has someone in mind, and the speaker expects the hearer to eliminate from the common ground worlds in which *more than one* friend of his did the graffiti.

Lastly, we turn to the definite use of indefinite descriptions: suppose there is a crime wave in a village. Many people have had their jewelry stolen by a unique (according to the police) individual, who has come to be known as "the local jewelry thief". One day, one of the villagers becomes victim of this thief; when a friend of his asks him why he is so upset, he utters (29):

(29) A jewelry thief paid me a visit this morning.

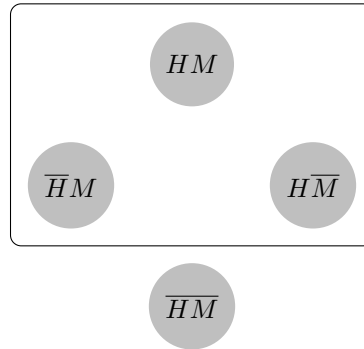
The context states that the Question under Discussion is "Why are you so upset?". Upon hearing this question, we can imagine that (29) is short for (29'):

(29') [I am upset because] a jewelry thief paid me a visit this morning.

In the light of this possible reading of (29), we can infer that its focus structure is then that of (29''):

(29'') [I am upset because] [a jewelry thief]_F paid me a visit this morning.

The minimal content of (29) will be the general proposition that a jewelry thief paid me a visit this morning. We assume that the domain of discourse only contains two jewelry thieves, Harry and Marv, and let H and M stand for the propositions that Harry paid me a visit this morning and that Marv paid me a visit this morning, respectively. The following picture represents the current situation:



Once again, what is said by (29) coincides with its minimal content, that is, that a jewelry thief paid me a visit this morning. Here, the situation is, admittedly, more confused, and Ludlow and Neale (1991), whose example we are quoting, does not shed more light on the matter. In uttering (29), the speaker intends to make common ground the assertion according to which a jewelry thief paid him a visit that morning (the situation depicted above). Assuming that the participants are rational, how can the hearer derive the implicature? This is, in our opinion, more troublesome; but troubles do not derive, in our opinion, from S&S's account, rather from the examples of definite uses of indefinites in Ludlow and Neale (1991). The context does not make clear if the hearer is an inhabitant of the village, hence being in the know of the existence of the unique jewelry thief, or if he has heard of him somehow else. At the very least, it could be said that,

if the hearer is a foreigner, the speaker is using the indefinite description because the hearer is not *familiar* with the existence of the unique jewelry thief. And familiarity conditions are required for understanding a definite description (Heim 1982).

This concludes this section. One could argue that the examples provided here are not extremely illuminating, in that, in each case, we have observed that what is said by an indefinite description coincides with its minimal content; this, according to Schoubye and Stokke (2016), is not a problem *per se*, and there are examples, like the one we have discussed above, in which the two aspects diverge. Most likely, the reason why, in our case, the two notions converge is due to the fact that indefinite descriptions are not propositional fragments, hence their compositional meaning is already perfectly suited for deriving their truth-conditional content. The entailment relation between minimal content and what is said, then, will be trivial, for the cases under scrutiny;⁶ at any rate, the purpose of this section was simply to show that, in our opinion, the linguistic and semantic framework of S&S's is able to comprise other pragmatic factors which lie outside the traditional scope of a formal theory of meaning. The authors do not discuss cases of conversational implicatures, but we think that the derivation we have conducted here can be interpreted in the light of their formalism.

2.1.3 QUD and Uses of Descriptions

In the first chapter, we have briefly introduced the topic of predicative descriptions, that are descriptions used to “say something about an individual already mentioned” (Strawson 1950, p. 320). We have observed that the criteria which help us distinguishing between an attributive and a referential reading, namely acquaintance and “having in mind”, do not help characterize predicative descriptions as well. In what follows, we will hint at a possible solution to this problem; we will argue, in fact, that the distinctive criterion has to be found outside epistemology – loosely intended, here – but into the pragmatics of discourse. The notion of *topic* defined in the QUD-approach to meaning will serve as the distinctive criterion, while

⁶It should be noted, however, that in the last section of this chapter we will deal with a criticism aimed at Schoubye and Stokke (2016), in which not only the entailment relation is not trivial, but it also brings to unwelcome results

providing us with some further insights which will be deepened in the last chapter.

By using the notation employed in Ludlow and Neale (1991), we will define the three different uses of descriptions, and then we will confront the definitions with our QUD-based ones.

- Police is on a crime scene; the detective observes the corpse of Smith brutally murdered. By simply considering the manner in which the killer has operated, and the fact that Smith was an extremely lovable person, the detective utters (92):

(92) Smith's murderer is insane.

(92) is, in this case, an attributive description. Let us examine the scenario and the detective's utterance, employing Ludlow and Neale's terminology:

(SG) $\exists x(Mx \wedge \forall y(My \supset y = x) \wedge Ix)$

(PE) $\exists x(Mx \wedge \forall y(My \supset y = x) \wedge Ix)$

(PM) $\exists x(Mx \wedge \forall y(My \supset y = x) \wedge Ix)$

This situation is perfectly consistent with Russell's original insights. There is nothing more, in the attributive case, to the general Russellian proposition, which can capture both the proposition literally expressed, and what the speaker actually wants to communicate. With respect to **SG**, moreover, nothing on the crime scene allows the detective to be more specific; hence, a general proposition is expected there as well.

- We are at the trial for Smith's murder, and Jones has been charged with the crime. We are discussing his strange behavior at the bar; in the light of this, I utter (92). If someone asks to whom we are referring, we can easily answer "Jones" - whether or not Jones is the actual murderer. (92) is then used here referentially.

(SG) Ij

(PE) $\exists x(Mx \wedge \forall y(My \supset y = x) \wedge Ix)$

(PM) Ij

It's clear from the context that, in this case, my grounds for uttering (92) are far more specific, hence they are represented by a singular proposition; this coincides with the proposition I want to communicate, even though I overtly employ the general proposition in (PE).

- In front of a newsstand, I am reading to you the paper, inquiring into Smith's murder, which has been subject of big media interest. Finally, I reach the conclusion of the article, with the solution of the mystery. I can then - emphatically or not - say to you (93):

(93) Jones is Smith's murderer.

This is, as it appears clear from its surface structure, the predicative use of descriptions. The grounds for my utterance derive from a - assume it is - successful investigation, hence they are expressed by a singular proposition about Jones; with respect to the proposition expressed, there is nothing which prevents a Russellian to abide by her own propositional account, therefore the original apparatus can be used. What I want to convey with my proposition, on the other hand, is a singular belief about Jones and, most importantly, not a trivial identity statement; my communicative purpose is more informative than that, I am not saying that someone is identical to something, rather I am saying, of someone, that he is something. This point will turn out useful in the following discussion.

(SG) Mj

(PE) $\exists x(Mx \wedge \forall y(My \supset y = x) \wedge x = j)$

(PM) Mj

From this structural point of view, no difference emerges between the referential and the predicative use of descriptions; still, we are not in the position to disentangle the issue, because the terminology employed in Ludlow and Neale (1991) does not take into account the fact that, with a referential description, the speaker holds indeed a referential intention, by singling out a particular individual, while, under the predicative use, this intention is missing. In other words, these three layers which constitute - in our case - a definite description have no space for the speaker's intention and, more

macroscopically, for the idea that any assertion is uttered, by a speaker, with a perspicuous goal in mind, coherent with the common ground and the information accessible in the discourse. This will help us drawing the correct differences.

The further difference emerging from the previous analysis is in the speaker's grounds for uttering the description; the difference is explained by appealing to the epistemic relations we have mentioned above, namely acquaintance and "having in mind". In the attributive case, we are not acquainted - we do not have in mind - the individual or object satisfying the description, hence all we have to justifiably utter (92) is a general proposition. Compare this with the referential scenario; since Jones is directly accessible to the speaker, who is aware of what is happening in the courtroom, then her grounds for uttering (92) are singularly satisfied by the individual Jones, with whom the speaker is acquainted, who is in the speaker's mind. These two criteria, as we have already anticipated, are not sufficient for taking into account the third use of descriptions; the notion of *topic* and *focus*, encapsulated in the framework of the QUD-based approach of meaning, will serve the purpose.

Each of the scenarios in which the critical descriptions are uttered represents a particular discourse context, each with its own question under discussion, with its own topic. In the crime scene case, the detective utters (92) when confronted with the evidence of Smith's corpse; even though her utterance seems to behave as an answer to a polar question of the kind "Is Smith's murderer insane?", her purpose in the conversational context is to find out who committed the homicide, not to ascertain the mental status of the killer. Therefore, we can assume that the QUD is indeed the wh-question "Who killed Smith?", and her assertion regarding the insanity of the murderer can be interpreted as an answer to a *sub-question* concerning the characteristics of the murderer, needed to narrow the suspects down. Recall that, as made explicit in Roberts (2012) and Schoubye and Stokke (2016), a proper strategy of inquiry is "segmenting the QUD into various subquestions and then addressing these individual subquestions in turn" (Schoubye and Stokke 2016, p. 770). And the detective's move is relevant, for it answers a subquestion of QUD (see Roberts' definition of relevance). The QUD which arises from the context is "Who killed Smith?", but (92)

per se does not presuppose this question: following, however, Carlson's hypothesis which we have mentioned in the first chapter, we assume that this sentence is most naturally uttered with an intonational stress on the predicate term:

(92') Smith's murderer is [insane]_F.

hence being congruent with a sub-question concerning the characteristics of Smith's murderer. Let us move to the referential scenario. Clearly, the QUD is different from the previous case, because it is assumed in the context that all the participants know who committed the crime: Jones, who is at the bar, charged with the crime, and who is behaving strangely.⁷ As before, we believe that the most natural reading for a sentence like (92), also in the referential case, is with a stress on the predicate term. Therefore, the situation is just as the previous one:

(92') Smith's murderer is [insane]_F.

This in turn entails that a possible QUD is "What is Smith's murderer like/What are the properties of Smith's murderer?".

But there is a crucial difference, here, which the QUD-approach can help us highlighting: when I am uttering (92) in the referential scenario, it is ascertained that all the participants at the discourse are observing Jones' behavior at the bar, and they all know that he is – we assume justly – accused of having killed Smith. Therefore, given that we are all cooperative and rational agents, if one decides to utter (92) notwithstanding her grounds of utterance, then she is generating an implicature. Whatever the implicature is, in this case (one might be referring to Jones as "Smith's murderer" to underline the fact that, in her eyes, the person will always be a killer, from that moment on), the hearer(s) of this utterance are in the position to derive the implicature that the speaker is talking about Jones; so, the common ground of assertions can be updated, eliminating all the possibilities in which it is not Jones who is (the unique) Smith's murderer. This situation, which can be inferred from S&S's framework, is also equivalent of the case of referentially used indefinite descriptions.

⁷For the purpose of this argument, we will not discuss here the case in which an utterance of (92) represents a case of *misdescription*. Therefore, we assume in the foregoing that Jones is justly accused.

Lastly, let us discuss the predicative case. The context already made clear that, in reading the newspaper, I was interested in discovering who is Smith's murderer; therefore, it is clear that the QUD would be "Who is Smith's murderer?", and (93) is a perfectly total answer to this question. Question-answer congruence is respected, in that it can be seen that my utterance of (93) is centered around the identity of the murderer, rather than the actions of Jones. In fact, I was reading the paper in search of - hopefully - a name, and I did find out that Jones was the murderer, not someone else. The prosody of my utterance will then be represented as follows:

(93') [Jones]_F is Smith's murderer.

Crucially, my utterance of (93) is by no means an answer - partial or total - to an identity question of the form "Who is Jones identical to?/Who is Smith's murderer identical to?", irrespective of the prosodic focus of the sentence; the topic of the discourse is not to ascertain whether someone is the same as something else, rather I want to investigate on the identity of the person of whom it is *predicated* that is Smith's murderer. From a discourse point of view, then, we cannot assume that (93) is a simple identity statement; in different ways, this was already acknowledged by pointing out that the proposition meant by the speaker, in uttering (93), is a singular proposition of the form *Mj*.

This last point serves to answer to a plausible criticism, according to which acknowledging the presence of predicative descriptions is a trivial task, and that the statements chosen as representatives of predicative descriptions are simple *identity statements*, and that they should be analyzed as such. On some levels of analysis, this is true, but most importantly is not news: already Russell pointed out that, asserting "Scott is the author of *Waverley*", "we assert an identity of denotation with a difference of meaning" (Russell 1905, p. 483), and his theory of descriptions served precisely the purpose of explaining this difference. Hence, we'd have already all the means for dealing, in a perspicuous way, with predicative descriptions. We believe that this is the place in which shifting from the epistemology of acquaintance and the having in mind relation to the pragmatics of discourse shows some serious advantages. Consider the classical example in Russell (1905):

(94) George IV wished to know whether Scott was the author of *Waverley*.

What is the nature of the proposition George IV wants to know about? Assume the king is acquainted with Scott, and he is pointing at him: being Scott the author of *Waverley*, George IV should be entertaining a proposition of the form $x = x$. “Has Russell attributed an interest in the law of identity to the first gentleman of Europe?” (Kaplan 2012, p. 133); this is doubtful, because the king had arguably two different ways of having Scott in mind. The presence of a *how*-problem, with respect to the cognitive significance of identity statements, poses a problem both for Russell’s acquaintance, and for Donnellan’s having in mind; Frege’s original concerns about identity strike back. But, if we assume that the cognitive significance of statements is measured in terms of the information they bring to the discourse, then interpreting the statements within the QUD-approach will help clarify that George IV’s purpose in the conversation - the *topic* of His assertion - is to know whether Scott has the *property* of being the author of *Waverley*, not to know whether the law of identity holds.

2.2 A Side Note on QUD and Slurs

This section represents, in part, a diversion from the main argument of this work. However, since the topic is gaining increasing attention in the philosophical and linguistic literature, we have decided to devote to it a brief section, to show that a QUD-based account of meaning can be fruitful for analyzing *slurring expressions* as well, with the *proviso*, of course, that not all the declinations of the argument can be dealt with in conclusion of this chapter.⁸

It is universally renowned that Frege’s studies on arithmetic, logic, theory of reference, designation, and philosophy of language broadly construed, have been of invaluable importance for the analytic - and linguistic - turn in the philosophy of the dawning of the twentieth century. His works on the foundations of arithmetic, on the possibility of pursuing Leibniz’s dream of a *characteristica universalis*, and on the nature of logic, truth and reference,

⁸Recently, the topic of derogatory expressions has received attention also in the fields of experimental linguistics; see, for example, Domaneschi, Cepollaro, and Stojanovic (2025) for an interesting empirical study.

have, in certain respects, overshadowed other outstanding observations he hinted at in various works. Cases in point pertain to the pragmatics of discourse, like *presuppositions*, *implicatures* or *colouring*.

While Frege's observations on presuppositions, in Frege (1892), have either been deeply addressed, deepened and criticized by numerous scholars, or they have been translated into the Gricean notion of implicature (cfr., Neale (2001); Williamson (2009), among others), his (partial) notes on colouring have been engaged only in recent years, in the light of the *descriptive* vs. *expressive* meaning contention (Kaplan 1999; Picardi 2006; Picardi 2007).

Frege's prominent observations on colouring (*Färbung*) are found in Frege (1897): "If we compare the sentences 'This dog howled the whole night' and 'This cur howled the whole night', we find that the thought is the same. [...] But whilst the word 'dog' is neutral as between having pleasant or unpleasant associations, the word 'cur' certainly has unpleasant rather than pleasant associations and puts us rather in mind of a dog with a somewhat unkempt appearance." (Frege 1897, p. 140). As he points out, the thought of the two sentences is the same, hence they do not differ in their truth-value; the only difference, which is, according to Frege, a "trapping" of natural language which should not bother in the pursue of a mathematical-based ideal language, pertains to the negative attitude the speaker entertains, while uttering the sentence containing the word "cur".

The notion of colouring has paved way to an extensive debate concerning expressive lexicon and, more particularly, about the use of derogatory terms, like *slurs*. "Slurs are derogatory expressions that target certain groups on the basis of race, gender, sexual orientation, nationality and so on." (Cepollaro 2015, p. 36): examples are the F-word for discriminating homosexual people, or the Italian "terrone", which is a word discriminating people from Southern Italy.

The philosophical debate on the issue, which has not only theoretical and academic interest, but also political and social motivations, revolves around a point in particular: where does the derogatory content of slurs fall in? Is it part of the truth-conditional content of sentences, hence having an impact on their truth-values (Picardi 2006; Picardi 2007; Hom 2008), or should

it be destined to the pragmatics area, as presuppositions or conventional implicatures, with no impact on the literal meaning (Potts 2007; Schlenker 2007; Cepollaro 2015)?

In this section, we will show how a QUD-based account can frame some issues pertaining to slurs in the S&S's account. Such account can represent the following scenario; uttering a derogatory expression like "Renato is a terrone" is to propose to add to the common ground of conversation the proposition that Southern Italians are despicable (depending on the Question under Discussion). The speaker proposes such insertion, and the hearer is then in the position of accepting or rejecting such adding, in order for the conversation to resolve the at-issue content. "Relativizing" the utterance of a slur to a Question under Discussion (a hint to be found in Picardi (2006) and discussed by Penco in Penco (2018)), together with the pragmatic notion of presupposition *à la* Stalnaker meant as requirements on the common ground, are elements of discussion which now the reader should be already familiar with, having met them in the discussion of Schoubye and Stokke (2016).

In what follows, we will adopt Cepollaro's view according to which slurs are given a *presuppositional* account: when uttering a slur, the presupposition which is triggered is "an informative one, that expresses the speaker's derogatory attitude toward the target group" (Cepollaro 2015, p. 44). When someone utters "Renato is a terrone", she is not only conveying the meaning that Renato is a Southern Italian, but she is also activating a requirement on the common ground, that ought to be updated as to include the proposition that Southern Italian people are despicable. The presuppositional account better explains the behavior of the common ground; when a speaker proposes to update the common ground with that assertion, she wants all the participants to accept such insertion. What participants have to do, to avoid that, is to say something, stop the conversational game and preventing the derogatory presupposition from entering the background.⁹

Even though we take the presuppositional stance, the semantic side has its

⁹There are possible objections to the view according to which slurs are presuppositional triggers, and Cepollaro engages with them. At any rate, if your favored analysis of slurs lies beyond the realm of presupposition, other authors in the literature argue that slurs are actually better understood as conventional implicatures. See, among others, (Potts 2007).

own charm; Christopher Hom in Hom (2008) argues that *terrone* literally means “Southern Italian and despicable because of it”, actually extending this proposal by giving it an *externalist* twist. According to Hom, in fact, the meaning of the slur which discriminates Chinese people is “ought be subject to $p_1 + \dots + p_n$, because of being $d_1 + \dots + d_n$, all because of being NPC*, where $p_1 + \dots + p_n$ are deontic prescriptions derived from the set of racist practices, $d_1 + \dots + d_n$ are the negative properties derived from the racist ideology, and NPC* is the semantic value of the appropriate non-pejorative correlate of the epithet. For example, the epithet ‘ch**k’ expresses a complex, socially constructed property like: ought to be subject to higher college admissions standards, and ought to be subject to exclusion from advancement to managerial positions, and ..., because of being slanty-eyed, and devious, and good-at-launders, and ..., all because of being Chinese” (*ibidem*, p. 431).

However, this enriched meaning for slurring expressions still cannot account for a phenomenon that happens with slurs, namely, that they scope out some embedded constructions like negation:

(95) Renato is not a *terrone*

(96) Renato is not a *terrone* and despicable because of it

While the first sentence still preserves its derogatory force, the second one does not; so, a semantic explanation should also be able to predict this fact.

Another proponent of the semantic analysis of derogatory expressions is Eva Picardi. The point she makes for concluding that it is difficult to separate the assertoric content from the implicated content of a slur is the following: “If I report on the speaker who said ‘That cur howled all night’ with the words ‘He said that that dog howled all night’, I am certainly leaving out part of what he *said* (and not just conventionally implied). Whether my leaving out this piece of information renders my report wrong or simply inaccurate depends on what was the main point of the utterance on the given occasion. And this, in its turn, depends also on the audience I am addressing and on the focus of the present conversation [...]” (Picardi 2006, p. 64). What Picardi means by “focus of the present conversation” could be equivalent to our familiar notion of Question under Discussion; if this is correct, then what Picardi is saying is that an utterance containing

a slur could be a *relevant* (not in Roberts' sense, see footnote) assertion, in the light of a given question under discussion.¹⁰

The report example Picardi had in mind involves an investigation, in which a detective is trying to identify the murderer of a dog; therefore, it is important for the detective to know the exact words uttered by a suspect, in that they can help her in identifying the actual culprit of that hideous crime. But we can abstract on Picardi's observations on the question under discussion, with the help of the notion of focus.

(97) Renato [is a *terrone*]_F.

(98) [Renato]_F is a *terrone*.

By question-answer congruence principle, we assume that the question presupposed by an utterance of the first sentence is something like "Who is Renato?/What are the properties of Renato?". In the spirit of Picardi's observations, that answer will purport to propose a different *picture of reality* (*à la* Wittgenstein), by conveying the meaning that Southern Italian People are despicable because of it, where the context of utterance does not make it clear that anyone shares this derogatory attitude; on the contrary, the question is quite innocent. In Cepollaro's view, someone who utters a sentence thus focused is conveying not only that Renato comes from the South of Italy, but also that he is despicable for this very reason; the speaker would be forcing the common ground to include this condition, and the hearers have to choose whether to accept it or reject it, so that conversation can or cannot go on.

On the other hand, an utterance of the second sentence presupposes that the question under discussion could be the polar question "Who is a *terrone*?"; in this case, the common ground of assertion appears to already contain the information that Southern Italian people are despicable. So, in

¹⁰Notice, however, that, if we want to buy a semantic approach to the analysis of slurs, we should also buy the fact that (i) "terrone = Southern Italian + despicable because of it" and (ii) that the predicate "being a *terrone*" is actually a defective predicate, a concept under which nothing falls, but a concept nonetheless (Picardi 2006). But if we buy (i), then we have to face the problematic issues with respect to scoping-out we have mentioned above. Notice further that (ii) could in a way be bought in the QUD-approach, thanks to *consonance*; since the predicate is empty-extended, any sentence containing it will be defective. Therefore it cannot be relevant, in the light of the definitions given in the previous sections; at most, it could be interpreted as a consonant move. I wish to thank my supervisor for pointing this out in a private conversation.

Picardi's terms, there won't be any different picture of reality proposed (at least not by the utterer); and, going back to Cepollaro's terminology, the presupposition triggered by the slur would not be informative, in this case, for any participant at the discourse is already accepting it. No requirement on the common ground is actually activated, so it seems to us that conversation has no reason to stop, and discourse can go on quite smoothly, upon accommodation.

What we have discussed here is not an attempt to reconcile the observations made by Picardi, and the analysis conducted by Cepollaro; as we have stated above, our preferred view is the presuppositional one, for it has some advantages in explaining some phenomena which a semantic account cannot explain. What we have shown, just by singling out Picardi's observations on the report made to the detective, is that a Question under Discussion approach can enter, some could say by a back door, the debate revolving around slurs, by feeding the debate with some more elements of discussion. The original contribution of this approach is, in our opinion, the perspicuous study of focus; in the third chapter, we will extend on this notion, in the light of the new dynamic framework.

2.3 Concluding Remarks

In this chapter, we have discussed the QUD-based approach to what is said as conceived by Schoubye and Stokke (2016); after having analyzed its main features, we have explored some possible applications of this account to the study of descriptions broadly conceived.

In the case of (empty) definite descriptions, a QUD-based approach appears to be fruitful for explaining the variation in truth-value intuitions experienced by speakers upon evaluating empty descriptions; the variation is explained in terms of the question under discussion the sentences with empty descriptions are purported to answer. An assertion containing an empty description cannot be relevant, according to Roberts' definition, but it can be *consonant*, that is, it can be considered to be an attempt to answer the QUD. In the case in which the QUD has true answers, and the assertion containing the empty description is a consonant move with respect to the question, then, according to the False Intuition Hypothesis,

that assertion elicits feelings of falsity. And this is actually predicted by the account presented in Schoubye (2009).

In the case of (uses of) indefinite descriptions, we have showed that a QUD-based analysis can explain how the participants at the discourse can derive the relevant *conversational implicature* upon hearing an indefinite description used referentially or specifically; the derivation hinges on the notions of context and common ground, and the framework in Schoubye and Stokke (2016) presents an elegant formalization of those notions which can permit us to explain this pragmatic phenomenon.

In the case of predicative descriptions, we believe that a QUD-approach could help us in providing a positive criterion for arguing that such descriptions cannot be so easily translated into identity statements; in fact, when they are evaluated against a coherent context, predicative descriptions do not appear to constitute an answer to a question like “Who is x identical to? ”, rather they seem to answer to a question of the kind “What are the properties of x ?”. On a side note, we have observed that a QUD-analysis could also furnish another criterion for distinguishing between the attributive and the referential use of definite descriptions (Donnellan 1966), apart from the epistemological notions of acquaintance and having in mind.

So far, it seems that the ship of the question under discussion approach to meaning is sailing full sail. However, it would be misleading to think that things go so smoothly.

It has been recently argued, in a paper by Charlie Siu, that the account presented in S&S suffers from some problems; namely, the author argues that this account both *overgenerates* and *undergenerates*. Let us observe these criticisms in order.

Problems of overgeneration: Consider the following pairs of assertions:

- (99) Is Mary awake?
- (100) Someone is awake

Contrary to intuition, the QUD-based account predicts that what the answer says is that Mary is awake: the relevant propositions that can

count as answers are the proposition that Mary is awake and the proposition that she is not. The minimal content of the answer is, indeed, that someone is awake; since the minimal content is entailed by the relevant proposition that Mary is awake, and it does not entail in turn any proposition, what is said in the answer is that Mary is awake.¹¹ Or also, consider this pair:

- (101) Is Tipper a robot?
 (102) Tipper has some robot parts in him

“A natural way to describe the conversation between Anne and Bob is that Bob *says* that Tipper has some robot parts in him, and that, on accepting what Bob says, Anne either infers from it (and the background information in the common ground) to the conclusion that Tipper is a robot, or use it to update her confidence in the proposition that Tipper is a robot.” (Siu 2020, p. 3). However, S&S account predicts that what the answer says is that Tipper is a robot; the minimal content of the answer is that Tipper has some robot parts in him, and since the proposition that Tipper is a robot is the only (so the weakest) relevant proposition that entails the minimal content, what is said is that Tipper is a robot.

In a footnote, Siu points at another case of overgeneration: “in some cases, S&S’s account fails to respect the distinction between saying and implying. For example, consider:

- (i) a. Anne: Does every student like Tipper?
 b. Bob: A student likes Tipper

Assume that Bob is well-informed about the issue Anne raises. A natural way to describe the dialogue above is that Bob says that a student likes Tipper but implies (via the Quantity maxim) that not every student likes Tipper. But, according to S&S’s account, since the minimal proposition expressed by (i-b) is entailed by the relevant

¹¹As a matter of fact, the authors themselves argue that this is not a genuine case of overgeneration, because, for that to be a felicitous answer to the question, “Someone” needs to be intonationally stressed, signalling that the QUD is actually “Who is awake?”, rather than the polar question above.

proposition that every student likes Tipper, what (i-b) says is that every student likes Tipper” (Siu 2020, footnote 10).

Problems of undergeneration: Consider the following two sentences:

- (103) Is Tipper ready and strong enough to kill a dragon?
- (104) Tipper is ready but he is not strong enough

The minimal content of the answer is that Tipper is ready for something, but not strong enough for doing something. But it says that Tipper is ready, but not strong enough, to kill a dragon. This neither entails or is entailed by the minimal content; so, what is said by the answer cannot be accounted for, hence we have undergeneration. The problem, according to Siu, is in the very definition of WiS; the fact that what a sentence says is non-compositionally derived from its minimal proposition *and* the QUD is arguably a bug; and the pair above “seems to show is that things do go wrong if compositionality does not hold at the level of what is said.” (*ibidem*, p. 4)

With respect to overgeneration, we can reinterpret Siu’s criticism by saying that S&S’s account is not able to derive conversational implicatures (more specifically, the second example of overgeneration is a representative of a *scalar implicature*, about which more will be said in the next chapter). We believe that this criticism is misguided, and that Schoubye and Stokke (2016) has been unjustly charged with this overgeneration problem. Recall that what the authors call “what is said by *S* in *c*” is interchangeable with “proposition expressed by *S* in *c*, and truth-conditional content of *S* in *c*” (*ibidem*, footnote 15); therefore, following up on Gricean terminology, we should not expect that what is said should also comprise *what is implied*, that is, the enriched meaning which derives from the computation of some conversational implicatures. What we have done in this chapter has been to show *not* that the QUD-based account of WiS lacks in predictivity when it is applied to, for example, referential uses of indefinites; rather, we wanted to highlight that, thanks to the machinery employed in their framework, there is still room for explaining how the implicatures, which enrich the truth-conditional meaning, are derived. We have shown, in fact, that the notion of common ground gives rise to expectations and inferences, which are the bone structure for the implicature-deriving procedure.

With respect to undergeneration, on the other hand, we believe that the criticism is more serious, and it probably hits a crucial point; the minimal content is just the one compositionally derived from the lexical constituents and the way they are combined, which however conveys, in a sense, two different propositions. The QUD, on the other hand, is just one proposition. So, the non-composition between the minimal content and the QUD prevents us from deriving the correct truth-conditions. We should then arrive at the conclusion that composition ought to be required at the level of what is said as well.

We agree with all the authors involved in the discussion that context contributes to a variation in the meaning of sentences; we agree with Schoubye & Stokke in saying that the vast majority, if not all, of our sentences are couched within a conversational exchange whose purpose is to answer to a (implicit or explicit) question, and this is an intuition to be pursued; we agree with Siu, however, that the worries he has raised are a symptom of something to be at least discussed, if not modified, in Schoubye and Stokke (2016), at the level of how compositional meanings works. But we do not agree with Siu in two crucial points; we do not agree with his overgeneration counterargument, and we do not agree with his conclusion, namely that the role played by QUD in determining the meaning of a sentence is just an *epistemic* role, and it does not play a constitutive role.

By assuming that the Question under Discussion only plays such epistemic role is to disregard a lot of features which come together with basically any semantics for questions, like, for example, focus, presuppositions, background topic, and so on. And these features do play a role in the definition of meanings, each coming from its own way and each playing a specific part. We want to highlight once more that all the authors involved in this discussion hold the view according to which context is a decisive factor, in deriving meaning; this is a further reason for arguing that Siu is too harsh in deploying QUD in the epistemic area.

Since the semantic and linguistic approaches we have discussed in this chapter are all centered around the notion of conversation, which is conceived *à la* Stalnaker as an activity in which all the assertions are interpreted as *updating* the established common ground, or context of utterance, and

since the notion of context has played the central role in all the discussion we have conducted so far, together with some aspects pertaining to speakers' intentions, or speakers' *information states*, with respect to some sentences, we not only think that the QUD-based approach to meaning is coherent and needs to be preserved, but it is our belief that such approach can be enhanced with a more formally powerful background semantics. A *dynamic semantics* will do the job.

By employing a dynamic semantics, we will be able to define meaning in a different, non-standard, way, that is, meaning will be equivalent to *context-change potential*, the impact that a sentence has with respect to a context in which there are certain *information states*, or *topics under discussion*, which are addressed and which can evolve and vary during conversation. The dynamic semantics approach we are going to propose will circumvent Siu's criticism with respect to undergeneration by pointing out that compositional meanings will not be disregarded in the dynamic framework, rather they will represent the *preconditions* for the success of the discourse actions. Moreover, working within a dynamic framework entails that the standard classical notions of standard denotational meaning and truth will be overcome by the new context-defined notion of meaning; this will prevent us from defining a minimal content constraint in the first place. This, however, will not cause a loss of generality; rather, it will show, hopefully, that the project of bringing together different issues from semantics and from pragmatics can be pursued. It would be naïve, however, to entertain the hope of fulfilling it here; we will, at most, pave the way.

CHAPTER III

THE DYNAMICS OF DESCRIPTIONS

3.1 Motivation: Conversation is Dynamic

Having observed that the QUD-approach heavily relies on linguistic assumptions which carry a strong Stalnakerian fashion, it seems natural to explore the possibilities of a *dynamic* study of discourse, and to check whether framing the QUD within a dynamic semantics could result in a more powerful and more predictive theory.

Recall that Roberts' account, which is the linguistic foundation of S&S's account, stems in turn from the works of Stalnaker (Stalnaker (1978) *et al.*), according to which discourse is an activity oriented to the achievement of a goal, namely the resolution of a question which is accepted by the participants in the discourse. We have already discussed the advantages – and the shortcomings – of the QUD-based approach of meaning presented by Schoubye & Stokke; however, we hold that the problems emerging from that account *do not* depend on the underlying linguistic framework they have adopted. Rather, Roberts' observations are extremely insightful and worth-preserving; it is of great interest, in our opinion, to bring arguments from the linguistics literature and arguments from the philosophy of language closer together. To study the two disciplines in isolation, severed from one another, would be to do a disservice to each. For the same rea-

sons, we think that Strawson's observations in Strawson (1964) have to be pursued, for they represent an interesting attempt to build a bridge between the two fields of study (see e.g., Schoubye (2009), Felka (2015)); even though Strawson's works do reflect a period in which the arguments discussed were just beginning to be investigated, they nonetheless are a crucial starting point for our discussion.

Conversation, meant as a "game" pointed to an end,¹ cannot be thought of only in descriptive terms, rather it should incorporate a series of elements which, more often than not, fall outside an old traditional scope of the philosophy of language. It has been already observed how a compositional semantics *alone* cannot satisfactorily deal with some particular utterances of natural language; but the project of a truth-conditional semantics *per se* can be preserved. We are in a position to enrich the classical definition of meaning thanks to the formalization of other surrounding, yet pivotal, elements of language, like questions, prosodic focus, implicatures, common ground of conversation, context of utterance, and many others; these elements bring us closer to a highly comprehensive theory of natural language, which will suffer less from being far from our everyday use of language. And all these elements have been systematically studied within the dynamic approach of meaning, with interesting results.

There is another (in some sense, minor) aspect which can also be taken into account in a dynamic framework, namely, the *psychological* intentions of the speaker. It is argued, in Schoubye (2009), that the notion of relevance has to be examined without disregarding a "number of additional psychological and pragmatic factors" (*ibidem*, p. 613); these psychological factors are defined in terms of *interest-centering*, that is, a sound theory of language should consider also a relation between "informational contents and speakers' interests, desires, intentions, and so on" (*ibidem*). Clearly, it is an extremely daunting task to obtain here this all-encompassing theory, but it is at least worth-observing that dynamic semantics originates from a *cognitive/psychological* conception of meaning, according to which the purpose of interpretation is – very roughly – to specify how a receiver's

¹ Clearly, the game-metaphor comes from Wittgenstein's *Philosophical Investigations*, which paved the way for the pragmatic turn in the philosophy of language (Wittgenstein 1953). Closer to the connotation we mean here, see Groenendijk (1999, pp. 110–111).

information state would be modified by the giver's utterances, which are, in turn, a product of her own information state. The very notion of information states is, in our opinion, a path to define the psychological factors cited by Schoubye. Informational exchange is then a fundamental part of the interpretation process, all directed towards the dynamic semantics *adagio*: meaning is context change potential.

In more detail, we believe that the reasons to prefer a dynamic semantics, in the analysis of descriptions within a QUD-framework, are several and of different nature:

- There is an "exegetical" reason which favors this approach, namely that, as it is explicitly mentioned in Schoubye and Stokke (2016) (footnote n. 31), the source of inspiration of their work is to be found in a work by Mandy Simons of 2015, in which the author points out that her observations are encapsulated in the *DRT* account originally proposed by Hans Kamp. Admittedly, however, Schoubye and Stokke diverge, in developing their theory, from the ideas presented in Simons (2015);
- Schoubye and Stokke (2016) is, according to the authors themselves, more of a "programmatic statement rather than a full-fledged theory" (*ibidem*, p. 789), in the sense that some of the points raised are not completely satisfactory from a predictive point of view. The dynamic approach to questions, topic and focus which we are going to employ will permit us to formalize a broader number of observations which, until now, have hardly been considered theoretical assumptions in all effects (e.g., presuppositions, the ambiguity of constituent answers, etc.);
- One of the most insightful observations in S&S's framework is the question-answer congruence principle, which is, in view of a more comprehensive theory, the principle which enables them to generalize their theory going beyond the presence, in a context, of an explicitly uttered question. However, it appears that the authors rely little on this principle; on the other hand, the formalization of the notion of topic and focus, which is the core of the principle and which is

dealt with in Aloni, Beaver, et al. (2007), provides us with an elegant theoretical apparatus;²

- The dynamic semantics that we are going to take into account will help, in our opinion, to shed light on Siu's criticism with respect to the impossibility, in S&S, to differentiate between *saying* and *implying*. The authors argue that it is not clear whether all the relevant conversational implicatures can be dealt with, and they refer to Roberts (2012), in which it is specified that "As Sperber & Wilson (1986) argue in detail, one problem with the Gricean approach to date has been the vagueness in his definitions of the conversational maxims and hence the indeterminacy about their applicability. Besides Relation, Grice defined both sub-maxims of Quantity relative to the 'purposes of the conversation'. It doesn't seem unreasonable to hope that their senses, as well as the often cited problem of determining how to balance their conflicting requirements, might also be clarified through exploring their role in a framework based on information structure." (*ibidem*, p. 60). The definitions provided by Groenendijk in Groenendijk (1999), then re-adapted in Aloni, Beaver, et al. (2007), could help erasing this cloud of vagueness, and give the conversational maxims a little more of a "semantic fashion".

We have outlined (some of) the reasons in favor of a dynamic approach to Question under Discussion – in general, since clearly our main concern will be studying the behavior of descriptions within this new framework. We will now go into the detail of this merging operation, by focusing on its semantic and pragmatic benefits; but first, a few definitions are in order.

3.2 A Dynamic Semantics for Questions

For the purpose of clarity, we specify that the dynamic semantics under scrutiny here is Aloni, Beaver, et al. (2007)'s *update semantics for questions*. The idea behind update semantics is fairly intuitive; the receiver is in a certain information state, and she receives pieces of information in a sequential order. And, when she receives the information, her state changes:

²But we have seen that question-answer congruence is more extensively dealt with in Schoubye (2009).

what the new pieces of information mean are interpreted as contribution to the change of the information state of the receiver.

Some of the elements analyzed in Aloni, Beaver, et al. (2007) are as a matter of fact an adaptation of Gawron's dynamic model of domain restriction (Gawron 1996), which is then applied to Groenendijk's logic of interrogation.

Aloni, Beaver, et al. (2007)'s dynamic semantics is an account of the notion of *topic* and *focus*; according to the authors, "A dynamic view on meanings as context change potentials [...] will provide us with a substantial account of the dependence of focused answers on the *context* set up by their preceding questions." (Aloni, Beaver, et al. 2007, p. 123). This introduction already highlights an advantage with respect to Schoubye and Stokke (2016), in that the notions of topic and focus receive here, as it will be observed, a highly technical treatment, and will help shape a semantics of questions suitable for our purpose. Consider the following sentences:

- (105) a. Who did Rachel describe to Ross?
- b. Which celebrities did Rachel describe to Ross?
- c. Rachel only described [Mark]_F to Ross.
- d. # Rachel only described Mark to [Ross]_F.

After either question, only a focused answer like (105c) is *congruent*. But observe its meaning: after (105a), it means something like "The only person Rachel described to Ross is Mark", whereas, after (105b), it means "The only celebrity Rachel described to Ross is Mark". This example shows that two distinct questions pose the same conditions on the focal structures of their answers, but they have different effects on the quantificational domain generated by *only*. This is a problem for different theories which analyze focus, unless, according to Aloni, Beaver, et al. (2007), they define the *dynamics* of domain restriction which is at play here. This is precisely the aim of Aloni et al.'s work.

It is not our concern, here, to discuss in detail this work; however, it is important to emphasize that the semantics for questions that we have discussed in the first chapter, Groenendijk's partition theory and Hamblin's alternative semantics, are not fully satisfactory when it comes to particular aspect pertaining to questions. Partition theory is logically fascinating,

but it lacks empirical interest; first, partition theory is not well-suited for treating focus properly, so it has problems with the issues raised in (105). Secondly, Groenendijk cannot account what a *constituent answer* like (106c) expresses after questions (106a-b):

- (106) a. Who drives?
b. Who doesn't drive?
c. CARL.

Having the same set of complete answers, the two questions, in Groenendijk (1999)'s theory, induce the same partition; hence, the different content of (106c) cannot be accounted for.³

Hamblin's alternative semantics is equally not fine-grained enough when it comes to *alternative questions*, more precisely, it has problems for deriving the alternative readings of disjunctive questions like the following:

- (107) Do you want ice cream or cake?

On the one reading, (107) is a polar question, whose intended answers are indeed "Yes" or "No"; on the other, (107) is an alternative question, the answers of which could be "ice cream" or "cake".⁴ It turns out that focus helps disambiguating the two readings, but, as explained, Hamblin's semantics does not present a proper treatment of the notion of focus.

- (108) Do you want ICE CREAM or CAKE? a. #Yes/No. b. Coffee/Tea.
(109) Do you want ice cream or cake? a. Yes/No. b. #Coffee/Tea.

As a matter of fact, there is a third possibility which is taken under scrutiny in Aloni, Beaver, et al. (2007), namely the *structured meaning* approach

³We adopt the convention according to which intonation, which conveys focus, is expressed in capital letters, whereas focus will be formalized by square-bracketing the focused constituent. At any rate, *mutatis mutandis*, the same thing can be concluded for a constituent answer to a polar question like the following:

- Does Carl drive?
- YES/NO.

⁴Even though, from a purely logical point of view, this ambiguity stands, we acknowledge the fact that the polar reading is, from an everyday language perspective, rarely available to speakers, unless they are trained in the arts of classical logic.

(see, among others, Krifka (1991)): in such approach, questions are functions that, once applied to the meaning of the (possible) constituent answers, yield as an output the meaning of the corresponding full sentential answers. Formally, they are represented as $\lambda \vec{x} \varphi$. Focus, on the other hand, partitions the semantic value of an expression into a *background part* (the given information, also expressed by a function) and a *focus part* (the new information): $\langle \lambda \vec{x} \varphi, \vec{a} \rangle$. Even though structured meanings have a respectable level of fine-grainedness, they wrongly predict that interrogatives in general belong to different semantic category. So, they cannot analyze successfully cases of embedding and coordination of questions:

- (110) Mary knows whether there is a match, who will go and who will fight whom.

We do not strictly need, for the purposes of this work, to disregard one semantics for question in favor of another. However, we saw fit, for the sake of completeness, to highlight the fact that a dynamic semantics for topic and focus (and, *a fortiori*, for questions) *à la* Aloni et al. can overcome all the technical shortcomings of the other semantic frameworks, by retaining their positive aspects. It is crucial to remember that S&S' semantic framework for questions is Groenendijk's partition theory, which, as we will see in more detail in the next subsection, brings to unwelcome results. That is why we believe that a different dynamic setting is more suitable for framing our observations.

3.2.1 Semantic Advantages

As it has been mentioned, the update semantics for topic and focus is based on Gawron's model of domain restriction. The syntactic and semantic machinery of Gawron's framework is extremely complicated. We will not explore it in detail, here, for it would go beyond the purpose of this chapter; suffice it to say that the crucial feature of this dynamic apparatus is that the domain of quantification can be non-locally fixed. Fundamentally for discourse reasons, "quantificational domains may not be monotonically narrowed as one proceeds through discourse" (Gawron 1996, p. 261); or "sometimes, in conversation, certain domain constraints are dropped

while others are simultaneously preserved" (*ibidem*). In other words, it is a linguistic fact that quantificational domains behave *dynamically*:

- (111) a. Henrik likes to travel. He goes to France in the summer and he usually travels by car. He goes to England for the spring holidays and he usually travels by ferry.
- b. Henrik likes to travel. He usually travels by car and he goes to France in the summer and he usually travels by ferry and he goes to England for the spring holidays.

In (a), the adverb *usually* restricts the domain of the quantifier first to trips to France, then to those to England. The discourse in (b) sounds odd, for the reordering makes the restricted interpretation harder.⁵ The contrast shows a general issue; "domains of quantification are constructed by combining constraints that arise from different sources" (Gawron 1996, p. 248). So, the problems arise from a lack of *discourse coherence*; discourse has to keep track of the alternatives under considerations and what is common ground, and this is true both for *quantificational domains* and *questions under discussion*.

The relation between quantification and questions under discussion is better represented by an example of how focus and quantification interact, chiefly with adverbial quantification. Depending on whether "Mary" or "John" receive intonational stress, the following sentence can receive two different interpretations (*e* stands for the set of events the adverb quantifies over):

- (112) Mary always took John to the movies.
- a. always *e*[if there exists *x* such that Mary takes *x* to the movies at *e*, then Mary takes John to the movies at *e*.]
- b. always *e*[if there exists *x* such that *x* takes John to the movies at *e*, then Mary takes John to the movies at *e*.]

Gawron calls the constraints that are combined for constructing the domains *environments*. In Aloni, Beaver, et al. (2007), the environments are included in the formalism as a sequence of sets of world-assignment pairs,

⁵This example in Gawron (1996) is taken from Partee (1993).

which represent the *topics* under discussion in the present context. Interrogatives will set up new topics, or expanding on others which are already introduced.

Topics are logical instruments which are just as fine-grained as abstracts as those in the partition theory; but, as anticipated, they will be proved to fare better when it comes to alternative questions and constituent answers. Similarly, topics will also help dealing with the shortcomings of the structured meaning account with respect to the example in (110). Lastly, since topics bring to domain restrictions, the impact of questions of subsequent domains can be accounted for, as well as the example in (105).

Formulas come with context change potentials. A context s_e is defined as $\langle s, e \rangle$, a pair consisting of an information state s (a set of world-assignment pairs) and an environment e (a sequence of states). States encode the available information, while environments encode the information under discussion. Context can be depicted as follows:

$$- \langle s : \Box, e : \Box_1, \dots, \Box_n \rangle$$

where each box stands for an information state.

For example, the two boxes below represent the state of minimal information $\min$, and the information that x is P , respectively.

$$\begin{aligned} - \Box &\mapsto \{(\emptyset, w) \mid w \in W\} \\ - \boxed{x: P(x)} &\mapsto \{(g, w) \mid g(x) \in w(P)\} \end{aligned}$$

As said, questions set new topics, or develop previous ones; they are formed by prefixing a question mark and a sequence of variables $x_1, \dots, x_n = \vec{x}$ to a formula. Updating with $?x\varphi$ means that the last element in the output environment is a state that verifies φ . Let's see some examples with questions.

A polar question like the following extends the environment with a state that entails that Mary drives:

- (113) a. Does Mary drive?
 b. $?D(m)$
 c. $\langle \Box \rangle \llbracket ?D(m) \rrbracket \langle \Box, \boxed{D(m)} \rangle$

Wh-questions like the following, on the other hand, extend the environment with a state which encodes the information that x is a driver. One may think that a sentence like (114b) introduces the set of drivers as topic under label x :

- (114) a. Who drives?
 b. $?xD(x)$
 c. $\langle \Box \rangle \llbracket ?xD(x) \rrbracket \langle \Box, \boxed{x: D(x)} \rangle$

We can now have a glimpse of one of the advantages of topics as defined in Aloni's formalism. From a topic in a context s_e , we can define both the Hamblin denotation⁶ or Groenendijk's partitions; assume that the domain only contains two individuals, a and b . Then, pictorially, we have the following situation:

- (115) a. $?xD(x)$
 b. $\langle \Box, \boxed{x: D(x)} \rangle$
 c. Hamblin:

$D(a)$
$D(b)$

 d. G&S:

$\forall x \sim D(x)$
$\forall x (D(x) \leftrightarrow x = a)$
$\forall x (D(x) \leftrightarrow x = b)$
$\forall x (D(x) \leftrightarrow (x = a \vee x = b))$

⁶What is defined in Aloni et al.'s paper as "Hamblin denotation" is as a matter of fact not the original Hamblin denotation, which is the set of the question's possible answers, rather than the set of the questioned propositions, as in (115c)-(116c). The latter are the definitions which are predicted, in Aloni's formalism, to follow from Hamblin's definition. See footnote 1 in Aloni, Beaver, et al. (2007).

(116) a. $?D(m)$ b. $\langle \Box, \boxed{D(m)} \rangle$ c. Hamblin: $\boxed{D(m)}$ d. G&S:

$D(m)$
$\sim D(m)$

The pairs in (115b-116b) are more fine-grained than the partitioned states in (115d-116d). This is clearer if we consider a conjoined question like $?xS(x) \wedge ?S(m)$. The second conjunct does not add anything to the partition after the first one (see c. below), but it non-trivially extends the environment (see b. below):

(117) a. $?xD(x) \wedge ?D(m)$ b. $\langle \Box, \boxed{x: D(x)}, \boxed{D(m)} \rangle$ c.

$\forall x \sim D(x)$
$\forall x (D(x) \leftrightarrow x = a)$
$\forall x (D(x) \leftrightarrow x = b)$
$\forall x (D(x) \leftrightarrow (x = a \vee x = b))$

The advantages of this formalism will become clearer in the following, but first we need to introduce further logical definitions, which will represent the crucial point of departure of Aloni's framework from Groenendijk's logic of interrogation. The first definition is that of *entailment*, $\models$, which is, however, exactly the same as Groenendijk (1999), whereas the second more relevant one is the discourse notion of *support*, $\models$, which is not defined in terms of partitions, rather as state-environment pairs. When it comes to indicative sentences, entailment and support basically coincide, but they diverge when questions come into play.⁷

⁷Even though the notion of support was not explicitly formulated in Groenendijk (1999), the fact that, in the game of interrogation, entailment and support, as it will be defined by Aloni et al., cannot coincide was in some sense already acknowledged by Groenendijk: "Contrary to what is the case in the game of reasoning [that is, a standard logic for declarative sentences], entailment is a vice rather than a virtue in the game of interrogation" (Groenendijk 1999, p. 115). See the first chapter for further details.

Entailment:

- An interrogative is *entailed* in a context iff its update does not further partition the input state.
- An interrogative $?x\psi$ is entailed after an indicative φ iff the indicative is a *complete answer* to $?x\psi$.
- An interrogative $?x\psi$ is entailed after another interrogative $?y\varphi$ iff any complete answer to $?y\varphi$ is a complete answer to $?x\psi$.

For example:

- $\forall x(D(x) \leftrightarrow x = a) \models ?xD(x)$
- $?xD(x) \models ?D(a)$
- $?D(a) \not\models ?xD(x)$

Support:

- An interrogative is *supported* in a context iff the topic it introduces is already entailed in the input context, either by the input state or by an old topic in the topic environment.
- An interrogative $?x\psi$ is supported after an indicative φ iff φ entails $\exists x\psi$.
- An interrogative $?x\psi$ is supported after another interrogative $?y\varphi$ iff $\exists y\varphi$ entails $\exists x\psi$.

For example:

- $D(a) \models ?xD(x)$
- $?xD(x) \not\models ?D(a)$
- $?D(a) \models ?xD(x)$ (Aloni, Beaver, et al. 2007, p. 128)⁸

Before discussing, in the next subsection, how the notion of support improves Groenendijk's definitions of relevance, we want to introduce further elements of Aloni's framework which will be helpful for our subsequent examination.

We have specified, in the beginning of this section, that Gawronian environments restrict the domain of quantification; and that this aspect of his

⁸For the sake of clarity, the definitions for entailment and support provided above are informal translations of the more formal definitions which are given in the Appendix of Aloni, Beaver, et al. (2007), Definition 4 and 5.

update semantics has been translated into Aloni, Beaver, et al. (2007) in terms of topics, which do indeed encode domain restrictions. When we have an update with a quantified sentence $\exists x\varphi$, this sentence only modifies the state, while, at the same time, depending on the environment; in particular, it depends on the last topic in which the quantified variable is defined.

- (118) a. $?xD(x) \wedge \exists xP(x)$
 b. $\langle \Box \rangle \llbracket ?xD(x) \rrbracket \langle \Box, \boxed{x: D(x)} \rangle \llbracket \exists xP(x) \rrbracket \langle \boxed{x: D(x) \wedge P(x)}, \boxed{x: D(x)} \rangle$

Questions then restrict quantification, in case they are coindexed; and this is proved by the following valid entailments.

- (119) a. $?x\vec{\varphi}_1 \wedge \dots \wedge ?x\vec{\varphi}_n \wedge \exists x\vec{\psi} \models \exists \vec{x}((\varphi_1 \wedge \dots \wedge \varphi_n) \wedge \psi)$
 b. $?x\vec{\varphi}_1 \wedge \dots \wedge ?x\vec{\varphi}_n \wedge \forall x\vec{\psi} \models \forall \vec{x}((\varphi_1 \wedge \dots \wedge \varphi_n) \rightarrow \psi)$

Another feature of topics is that they can be *presupposed*. Presuppositions are formalized with Beaver’s operator ∂ , which poses conditions on the input context that have to be met for sentences to be defined.⁹ Updating with a presupposition $\partial\varphi$ is sound if the context supports φ ; the fact that presupposition is defined via support entails that a presupposed topic like $\partial[?xM(a, x)]$ is defined after $?M(a, b)$, but not after $?xyM(y, x)$. In other words, if we have a presupposed topic like “Whom did Albert meet?”, this presupposition is defined after “Did Albert meet Bob?”, but not after “Who met whom?”. Tying together presuppositions and support opens up a series of interesting questions, some of which we will try and answer in the subsequent section; in particular, the definition of presuppositions in terms of the *discourse* notion of support seems to support (no puns intended) the view that presuppositions are intended to be, in the dynamic framework, *pragmatic* presuppositions, rather than *semantic*. It is well-known that there is a strict relation between semantic and pragmatic presuppositions, namely that the former always induce the latter, but not *vice versa* (Stalnaker 1970). At any rate, a formalization of presupposition is needed for defining the notion of *focus*; as we have observed in the structured meaning approach, focus partitions the expression into two parts, one of which – the background part – is nothing but the *presupposed topic*.

⁹See Beaver (1992). As we have observed in the first chapter, this is the already familiar Stalnakerian condition on the common ground which we have met when introducing S&S’s account.

We have already highlighted, among the benefits of a dynamic semantics for questions, that the notion of focus receives here a formalized treatment which hints at a better-constructed theoretical apparatus for framing our intuitions. We can now observe in more detail said benefits at work. Consider a sentence like (120) below, which (i) presupposes that a set D of drivers is under discussion, and (ii) asserts that Carl belongs to it.

(120) a. $[\text{Carl}]_F$ drives.

b. $\partial[?xD(x)] \wedge \exists x(x = c)$

c. $\langle \Box, \boxed{x: D(x)} \rangle \llbracket (120b) \rrbracket \langle \boxed{x: D(x) \wedge x = c}, \boxed{x: D(x)} \rangle$

Clearly, under this formalism, also focused questions can be accounted for. Consider (121), which (i) presupposes that a set D of drivers is under discussion, and (ii) asks whether Carl belongs to it.

(121) a. Does $[\text{Carl}]_F$ drive?

b. $?(\partial[?xD(x)] \wedge \exists x(x = c))$

c. $\langle \Box, \boxed{x: D(x)} \rangle \llbracket (121b) \rrbracket \langle \Box, \boxed{x: D(x)}, \boxed{x: D(x) \wedge x = c} \rangle$

We are now in the position to apply this new formalism to the aforementioned example (106) (repeated below), which constitutes a problem for Groenendijk's partition theory. Notice, first, that the constituent answer (106c) is defined as an existential sentence, whose domain is restricted by the previous question (Dekker 2002):

(106)	a. Who drives?	$?xD(x)$
	b. Who doesn't drive?	$?x\sim D(x)$
	c. $[\text{Carl}]_F$.	$\exists x(x = c)$

Within this framework, it can be correctly inferred that, after (106a), (106c) means "Carl drives"; on the other hand, after (106b), it means "Carl does not drive".

(122) a. $?xD(x), \exists x(x = c) \models D(c)$ 10
 b. $?x\sim D(x), \exists x(x = c) \models \sim D(c)$

¹⁰*Mutatis mutandis*, the current analysis can be applied to polar questions as well:

As anticipated, focus can help disambiguating the two available readings for the disjunctive question (107) (repeated below). Recall that the impossibility to disambiguity is a shortcoming of Hamblin's alternative semantics framework; within Aloni's framework, the ambiguity can be accounted for (Aloni, Beaver, et al. 2007, p. 133).

- (123) a. [Do you want coffee or tea]_F?
 b. $?(W(c) \vee W(t))$
 c. Yes/No.
 d. $\exists T / \sim \exists T$
 e. topic: $W(c) \vee W(t)$ $\mapsto$ f. Hamblin: $\boxed{\text{You want coffee or tea}}$

- (124) a. Do you want [coffee]_F or [tea]_F?
 b. $?(\partial[?xW(x)] \wedge \exists x(x = c \vee x = t))$
 c. Coffee/Tea.
 d. $\exists x(x = c) / \exists x(x = t)$
 e. topic: $x: W(x) \wedge (x = c \vee x = t)$ $\mapsto$ f. Hamblin:

You want coffee
You want tea

(123b) and (124b) establish different topics, hence it can be derived that the questions have different meanings; as a consequence, they allow for different answers.

We conclude this subsection with a short *addendum* which highlights even more, in our opinion, the advantages of a dynamic semantics for questions: the analysis of *which*-questions. The linguistic assumption behind *which*-questions is that they carry the presupposition that the set they range over is a *topic*. Observe, as an example, the following questions:

- (125) a. Which dogs are puppies?
 b. $\partial[?xD(x)] \wedge ?xP(x)$
- (126) a. Which puppies are dogs?
 b. $\partial[?xP(x)] \wedge ?xD(x)$

-
- Does Carl drive? $?D(c)$
 - [Yes]_F/[No]_F $\exists T / \sim \exists T$

Predictions are, again, confirmed, in that it turns out – correctly – that “Yes”, after the question, means “Carl drives”, whereas “No” means “Carl does not drive”:

- $?D(c), \exists T \models D(c)$
 - $?D(c), \sim \exists T \models \sim D(c)$

(125) presupposes that the set of dogs is the topic under discussion, asking, at the same time, which of them are puppies. (126), on the other hand, asks which dogs belong to the set of puppies (the topic under discussion). In Groenendijk's partition theory, the two questions are equivalent, in that they generate the same partition; but it is clear that the two questions differ, for (126), under the – true – assumption that all puppies are dogs, is vacuous. On the other hand, (125) is not a trivial question, therefore their formalization is crucially different.

For the purposes of the present work, we have omitted further elements discussed in Aloni, Beaver, et al. (2007), like the analysis of embedded and coordinate questions, which, as anticipated above, cannot be derived in the structured meaning framework. Even though it is interesting from a formal point of view how indirect questions behave under an epistemic operator like *know* or *wonder* (see (110) above), it is not relevant for this work, therefore we refer the reader to (Aloni, Beaver, et al. 2007, pp. 133–134).

As it can be noticed, we have decided to discuss the notion of focus in the subsection devoted to the *semantic* advantages of the dynamic framework for questions: it is acknowledged, in the literature, that focus plays a role in several sub-areas of linguistics, ranging from syntax to semantics, pragmatics and phonetics. However, we believe that, in the light of the formalism we have presented, focus will be helpful especially in the semantics of our account, in that it works directly on the *content* of the sentences we are going to analyze. At any length, this decision has been guided also by a reason of consistency for this chapter, since the *pragmatic* advantages, which we will be discussing in the next subsection, are more closely related to the – pragmatic – notion of discourse.

3.2.2 Pragmatic Advantages

When discussing Schoubye and Stokke (2016), we have observed that Roberts' underlying linguistic framework heavily relies on the notion of *relevance*, which is borrowed, with some changes, from Sperber and Wilson (1986), and which is defined as follows:

Relevance: A conversational move *m* is relevant to the question under

discussion q iff m either introduces a partial answer to q (m is an assertion) or is part of a strategy to answer q (m is a question).

Furthermore, we recall here the notion of relevance as defined in Groenendijk (1999); in this article it is called *pertinence*, but it is, as a matter of fact, fully equivalent to relevance.

Definition 9. (Pertinence) φ is *pertinent after* τ iff:

- i. φ is consistent with τ (*Quality*)
- ii. φ is not entailed by τ (*Quantity*)
- iii. φ is licensed after τ (*Relation*) (Groenendijk 1999, p. 116)

The major problems deriving from Definition 9 is that licensing and entailment prevent a correct application of the notion of pertinence to questions; according to Groenendijk, questions are always licensed (*ibidem*), and they are informative if and only if they are not entailed. So, we get this unwelcome results:

- (106) Who drives?
- (113) Does Mary drive? (not relevant)
- (127) Does Mary work? (relevant)

According to the definitions above, (113) is not relevant after (106) because, since it is entailed, it is not informative. On the contrary, (127) is relevant, because it is licensed, it is not entailed and it is consistent, after the first question. But there is a clear intuitive feeling that both (113) and (127) are not vacuous moves, after the interrogator utters (106): anyway, (113) is the only sub-question which is about the topic introduced by (106), because it opens up a strategy to answer it. So, we need to modify the definitions so that they can correctly predict the fact just discussed.

Aloni et al. propose to substitute entailment with *support*; for a sentence to be relevant, it should not be supported. In addition to that, Groenendijk's notion of licensing ought to be generalized so to include also aboutness for interrogatives. The results of this modification are represented in the following definitions:

Refined Pertinence: φ is *pertinent* in a context s_e iff:

- | | |
|---|------------|
| i. φ is consistent with s_e ¹¹ | (Quality) |
| ii. φ is not supported by s_e ($s_e \not\models \varphi$) | (Quantity) |
| iii. φ is licensed in s_e | (Relation) |

Refined Licensing:

- An interrogative $?x\varphi$ is licensed in a context iff $?x\varphi$ is entailed in the context.
- An indicative φ is licensed in a context iff $?x\varphi$ is entailed in the context.
(Aloni, Beaver, et al. 2007, p. 129)

In other words, a sentence is licensed iff it exclusively addresses the question under discussion Q either by giving a partial answer to it, or by introducing a question the answers of which are partial answers to Q , i.e., an entailed question. Notice that this is precisely the formalization of relevance as introduced in Roberts (2012).

Refined Pertinence allows to correctly predict the facts below:

- | | |
|------------------------|----------------|
| (106) Who drives? | |
| (113) Does Mary drive? | (relevant) |
| (128) Mary drives. | (relevant) |
| (127) Does Mary work? | (not relevant) |

(113) is relevant, because it is consistent, it is licensed, but it is not supported after (106), and the same goes for (128) – notice that both (113) and (128) are *entailed* after the Question Under Discussion. Finally, (127) is not relevant, because it is not licensed.

Before concluding this section and finally employing the dynamic semantics for questions, topic and focus to the QUD framework, we want to explore one last benefit, from a pragmatic point of view, that Aloni's account provides: thanks to this formalism, the notion of *discourse congruence* can be interestingly characterized, which can overcome the problems of *over-focus* and *underfocus*, which will be explained shortly. Crucially, we want

¹¹It is not clear, actually, whether Aloni, Beaver, et al. (2007) does employ the notion of consistency in their definition of pertinence, for they only discuss support and licensing; however, we think that this definition is quite harmless for their framework.

to highlight the fact that discourse congruence is nothing but a reformulation of the *question-answer congruence* principle that we have discussed in the first chapter of this work.

In Aloni, Beaver, et al. (2007), a sentence φ is *congruent* after ψ iff (i) the presupposition of φ is defined after ψ , and (ii) no more material is in focus than needed to satisfy (i) (*ibidem*, p. 138). Recall that focus presupposes a question under discussion, and that presupposition is defined, in this framework, via support. Lastly, recall the definition of support when applied to interrogatives:

- An interrogative $?x\psi$ is supported after an indicative φ iff φ entails $\exists x\psi$.
- An interrogative $?x\psi$ is supported after another interrogative $?y\varphi$ iff $\exists y\varphi$ entails $\exists x\psi$.

Putting things together, we can describe the fact that a sentence is congruent if it *either* matches the question that the sentence addresses (as in (129) below), *or* it is in *contrast* with a previous assertion (as in (130) below).

- (129) a. Who voted for Trump? $?xV(x, t)$
 b. [Carl]_F voted for Trump. $\partial[?xV(x, t)] \wedge \exists x(x = c)$

- (130) a. Steve voted for Trump. $V(s, t)$
 b. No, [Carl]_F voted for Trump. $\partial[?xV(x, t)] \wedge \exists x(x = c)$

(129) and (130b) are congruent after (129a) or (130a), because they're focused "enough" to be defined after their antecedent questions. Observe that, in the same contexts, the following are infelicitous answers.

- (131) a. #Carl voted for [Trump]_F. $\partial[?xV(c, x)] \wedge \exists x(x = t)$
 b. #[Carl]_F voted for [Trump]_F. $\partial[?xyV(x, y)] \wedge \exists x(x = c) \wedge \exists y(y = t)$

(131a) is undefined after (129a) and (130a), because the presuppositions are not matching; therefore, it violates condition (i) of congruence. (131b), on the contrary, violates condition (ii), because, intuitively, there's more focus material than needed.¹²

¹²In this framework, and as a matter of fact in Roberts' as well, *underfocused* questions will always be undefined, and *overfocused* questions will always violate condition (ii).

Moreover, Aloni, Beaver, et al. (2007) provides the correct predictions for sequences in which contextual restrictions come into play. Since (132) supports (129a), it turns out that the two questions impose similar conditions on how their answers ought to be focused.

- (132) Which Republicans voted for Trump? $\partial[?xR(x)] \wedge ?xV(x, t)$

As we have discussed in the previous chapters, an almost century-old tradition takes the topic of a sentence to be the the *referent* the sentence is about (Ryle 1933; Goodman 1961). Along the lines of this tradition, the term “referent” is thought to be not necessarily a particular real entity, rather a *discourse referent*.

What a sentence is about is marked, in English, by accent: following the definition of Jackendoff (1972), we distinguish between *A*– and *B*– accent. In the following example, the (rising) *A*–accent signifies *dependent* focus, while (the falling) *B*–accent represents the *independent* one.

- (133) Well, what about Fred? What did he eat?

- (134) Fred_B ate the beans_A.¹³

The *A*–accent marks the presence of *focus*, for, as it can be seen in the example above, it conveys the new information after the questions; the *B*–accent, on the other hand, signifies the *contrastive topic*, namely the – already given – information which stands in contrast with other information which are ruled out by intonation (“Fred, NOT Jim”, for example).

As already mentioned, focus presupposes a topic: since in (134) two foci are present, then (134) presupposes at least the multiple *wh*-question below. However, we also assume that it presupposes another one (Büring 2003):

- (135) a. Who ate what? $?xyA(x, y)$
b. What did Fred eat? $?yA(f, y)$

Following Roberts (2012), both (135a) and (135b) constitute a *strategy of inquiry*. But, thanks to Refined Pertinence, we can observe that (135b) does indeed represent a strategy to answer (135a), but not *vice versa*. So, we can

¹³This example is taken from Büring (2003).

conclude that the presupposition and the assertion of (134) can be formalized as follows:

- (134) a. Fred_B ate the beans_A.
 b. $\partial[?xyA(x, y)] \wedge \partial[?yA(f, y)] \wedge \exists y[y = b]$ or equivalently
 c. $\partial[?xyA(x, y)] \wedge \partial[?x(x = f)] \wedge \exists y[y = b]$

And the ordinary meaning of the sentence is entailed: (134c) $\models A(f, b)$.

This concludes this section. As said, other elements of discussion have been neglected, for they go beyond the scope of this work, and could deflect attention from its main core.¹⁴ We think that the issues exposed so far are sufficient for dealing with descriptions within the QUD-framework, which will now be enhanced with the dynamics semantics just described.

3.3 Dynamic QUD (*D-QUD*)

We are now in the position to enhance the QUD-based approach of meaning with the machinery of dynamic semantics as conceived by Gawron (1996) and Aloni, Beaver, et al. (2007). The disclaimer is that our tentative semantic apparatus diverges from the two underlying frameworks aforementioned in one crucial respect: Gawron's Restriction Logic *RL* - and, *a fortiori*, Aloni's account - takes a domain of individuals which is conceived classically, therefore each of them ought to *refer* necessarily. For the purpose of our discussion, we want to remove this constraint, thus allowing for a larger domain comprising also *possible* objects. The formal motivation for this *proviso* will be clearer shortly; suffice it to say, for the time being, that this *proviso* is *pre-theoretical*, hence it should be highlighted that no harm will be made to the formalism of both Gawron and Aloni et al. With respect to the "intuitive" motivation for having this looseness in our domain, we want to stress the fact that our everyday conversation is imbued with ideas, notions, individuals, which, more often than not, happen to be no

¹⁴As an example, Aloni, Beaver, et al. (2007) discusses focus-sensitive expressions like *only* and *always*: following the observations presented in Beaver and Clark (2003), according to which such expressions do not constitute a uniform class of expressions, the formalism presented in this section allows us to conclude that the derivation of those two focus-sensitive items do indeed work in different ways, namely it is proved that *only* comes from a syntactic/grammatical mechanism, whereas the interpretation of *always* stems from pragmatic matters, in particular it is determined by the discourse topic.

reference in the actual world; and, more often than not, such empty concepts have a causal impact on our lives. It would be obvious to underline how the character of Santa Claus has always influenced every children's behavior; and it would be more embarrassing than obvious to underline how the comics character of Superman has influenced my own. And, even more crucially, it should be emphasized that *interrogating* on such concepts is even more fundamentally rooted in our discourses.

One difference between our proposal and Schoubye and Stokke (2016) is quite straightforward, and stems quite unavoidably from the choice of the starting semantics; since the latter is based on Groenendijk's partition theory which, both for its interrogative semantics and for its semantics for declarative semantics, is classical, it provides us with sentential truth-definitions and other "classical" tenets as *compositional meaning*, truth-conditional meaning, and the like. Our account is framed within a dynamic semantics, in which sentences are represented not *via* their truth-conditions, rather they are evaluated with respect to their capacity to *impact on the context in which they occur*. This does not mean that compositionality is disregarded; "Montagovian" meanings are, in this framework, the *preconditions* for success of the discourse actions. This is somehow mirrored in Gawron's Restriction Logic, and this is also the reason why we have decided to have a domain extended to possible individuals.¹⁵

The notion of relevance, as it has been noted in the second chapter when defining Schoubye's account, is tied to the classical idea of referentiality, which, in the case of empty descriptions, turns out to be too strict a concept, which prevents our intuitions to be framed in a semantic/pragmatic account of language. Consonance, in Schoubye (2009), is a concession to these intuitions; we want to follow that thread, and widen the predictive capacity of a semantic account, thus trying to incorporate even more

¹⁵Of course, nothing prevents us from *further* extending the domain so that it could include impossible objects, like "the round square". However, admitting this kind of objects is - for the time being - not relevant for our purposes. One could argue, as a matter of fact, that quantifying over individuals like Superman or Santa Claus would require a domain of impossible objects, for they are both *under-characterized*, and at risk of being contradictory, when it comes to some of their essential properties, like for example their height, their weight, etc. So, one could say that Santa Claus is both six feet tall or five feet tall, since his height is nowhere specified; from this fact, some have proposed that such objects ought to be dealt with in a *paraconsistent* logic. See Berto (2013) for further discussion.

strictly pragmatic issues which unavoidably occur in our everyday conversations. This is the fundamental purpose of our work: whether or not it will be accomplished, it cannot be settled here. But we hope that it will be at least a coherent and sound attempt. Our interest lies in descriptions widely conceived, therefore we think that a better account for them can be given in a dynamic framework, even neglecting the “empty” side of the discussion. But, with our *proviso* on the domain, we hope that empty descriptions can be “avenged” as well.

We can now proceed to the formalization of our proposal, so that it can be observed, in the following subsections, how it can relate to the analysis of descriptions. In what follows, it will be specified which definitions are borrowed from Aloni, Beaver, et al. (2007), and we will point out those definitions which we propose to add both to Aloni’s and to Schoubye’s frameworks.

The main core of our definitions comes from Aloni, Beaver, et al. (2007, Appendix): the vocabulary of language is a standard first-order language with identity, with a polyadic existential quantifier $\exists x_1, \dots, x_n$, a presupposition operator ∂ and a question operator $?x_1, \dots, x_n$. We repeat - and extend - the definition of context: a context s_e is a pair consisting of an environment e and an information state s . An information state is a set of world-assignment pairs, whereas an environment, as it is defined in Gawron (1996) is a sequence of information states.

At this point, we already propose a modification in the vocabulary of Aloni, Beaver, et al. (2007); instead of being a standard first-order language, we are going to use a *second-order* one, so that the quantifiers will range not just over individuals, but also over relations and properties. This modification is extremely helpful, in that it will be useful for discussing descriptions when uttered without any background contextual informational or intonational stress (which, we recall, are assumed to be focused on the predicate term). The vocabulary of second-order language is, at any rate, the traditional one; below, we will add the definition of the context change potential of an existential statement which ranges over properties.

The elements of the state are the *possibilities*; a possibility i will be defined as $i = \langle w, g \rangle$, where w is a possible world and g is an assignment. Possibil-

ities are ordered by the extension relation $\prec$: j extends i , $i \prec j$, iff $w_i = w_j$ and $g_i \subseteq g_j$. This relation extends to information states: s is a substate of t , $s \prec t$ iff $\forall i \in s : i \prec t$, where $i \prec t$ iff $\exists j \in t : i \prec j$.

The basic formulas, in terms of context change potential, are defined as expected, in that they only influence the state parameter. Environments, on the other hand, will play a role for quantified sentences and questions:¹⁶

- $s_e[Pt_1, \dots, t_n] = \{i \in s \mid \langle i(t_1), \dots, i(t_n) \rangle \in i(P)\}_e$
- $s_e[\sim\varphi] = \{i \in s \mid i \not\prec S(s_e[\varphi])\}_e$
- $s_e[\varphi \wedge \psi] = s_e[\varphi][\psi]$ ¹⁷

The update of the context with an existential sentence $\exists x_1, \dots, x_n \varphi$ is defined as the *merging* of two information states (which is defined as the “least upper bound”, as in Dekker (1993)).

$$s \wedge t = \{i \mid \exists j \in s, \exists j' \in t : \text{dom}(i) = \text{dom}(j) \cup \text{dom}(j') \ \& \ j \prec i \ \& \ j' \prec i\}$$

We define a random assignment $s[x]$ as $\{\langle w, g[x/d] \rangle : \langle w, g \rangle \in s \ \& \ d \in D\}$, and we assume that $x_1, \dots, x_n = \vec{x}$ are not defined in s . So, we have that:

- $s_e[\exists \vec{x} \varphi] = (S((s[x_1], \dots, [x_n])_e[\varphi]) \wedge e(\vec{x}))_e$, where $e(x_1, \dots, x_n)$ is the last state in e in which the variables are defined.

The previous one is the definition which is most relevant for our following discussion. Three aspects, in particular, have to be highlighted: **the randomness of the assignment**, **the domain D** , and **the sequence of variables** not defined in the information state s .

Both the randomness and the “new” sequence of variables represent the peculiarity of existential statements in dynamic semantics: basically, a formula $\exists \vec{x} \varphi$ takes a context, it randomly changes the value of x in each assignment in the context, and passes these changed assignments on to the output context, if these assignments also satisfy the condition contributed by the *test* φ . A test works in the following way: if we take φ to be a simple one-place formula like Px , this formula “tests” whether every state/assignment

¹⁶Disjunction, implication and the universal quantifier are inter-defined in terms of conjunction, negation, and the existential quantifier.

¹⁷Conjunction is defined, as in the tradition of dynamic semantics, as sequential update.

in the current context assigns a value to x that satisfies the relevant predicate (see the definition above for atomic formulas).

A consequence of this definition is that the scope of the existential quantifier is in principle *limitless*. It changes the value of some variable and, until a further change to that variable occurs, any subsequent test accesses the particular value that was set. This also means that the semantics of existential quantification can be given without reference to any scope: the meaning of $\exists x$ is the action that takes a context and returns the same context with at most the value of x randomly replaced by another value.

The new assignments which are brought by the introduction of the existential quantifier can be defined as to map the new variables onto objects in *our* own domain of quantification, namely the expanded one also including possibly empty-referring individuals. This little amendment in the definition will allow us to quantify over empty descriptions, which are, of course, defined *via* the existential quantifier.

We define, now, the context change potential of a second-order existential statement. A property P refers to a set of individuals in D such that $i(P) \subseteq D$, for every possibility $i = \langle w, g \rangle$. We define a random assignment $s[P]$ as $\{\langle w, g[P \mapsto D'] \rangle : \langle w, g \rangle \in s \text{ \& } D' \subseteq D\}$. So, we have that:

$$- s_e[\exists P\varphi] = (S((s[P])_e[\varphi]) \wedge e(P))_{e'}, \text{ where } e(P) \text{ is the last state in } e \text{ in which the property is defined.}$$

The meaning and the interpretation of this definition is basically the same as the first-order counterpart, simply relativized to properties, which can have, in our account, an empty extension.

Lastly, we can define the context change potential of an interrogative statement: interrogatives are the only sentences which make direct use of the environment. As it was already mentioned, the effect of updating the context with a question is that the last element in the new environment is a set of possibilities which verify what is asked about.

$$\begin{aligned} - s_e[?x\varphi] &= s_{e'}, \text{ where } e' = e + S(s_e[\exists x\varphi]) \\ - s_e[?P\varphi] &= s_{e'}, \text{ where } e' = e + S(s_e[\exists P\varphi]) \end{aligned}$$

An update with a quantifier (or a question) depends on the last introduced state in the environment in which the quantified variables (or properties)

are defined. Polar questions and answers, on the other hand, depend on the last introduced state.

Entailment is defined as in Groenendijk (1998), that is in terms of *subsistence* between states. Some specifications are needed; since the starting framework is Groenendijk's partition theory, the definition of partitions has to be included here. However, as we have specified above, partitions bring to unwelcome result only when they are applied to some particular constructions, like constituent answers, and to the study of focus. But Aloni, Beaver, et al. (2007) provides us with the instruments for dealing with both issues properly; this does *not* entail, however, that we cannot make use of partitions. And this is in fact what it will be done in the following.

$P(s_e)$ denotes the partition which is induced on s by all the topics which are in the environment e . If $L(e)$ is the length of the environment (for example, $e = \langle e_1, \dots, e_m \rangle$, then $L(e) = m$), then $P(s_e) = \bigcap_{k \in L(e)} (P_k^{s_e})$, where

$$- P_k^{s_e} = \{ \langle i, j \rangle \mid i, j \in s \ \& \ \forall \vec{d} \in D^n : i[\vec{x}/\vec{d}] \prec (s \wedge e_k) \leftrightarrow j[\vec{x}/\vec{d}] \prec (s \wedge e_k) \}$$

Partitions assigned to contexts turn out to be equivalent to the structured states defined in Groenendijk (1998), which are related between them via subsistence. Subsistence, in turn, is defined exactly like the extension relation between possibilities. So, the definitions of entailment are the following:

Entailment:

- $s_e \models \varphi$ iff $P(s_e) \prec P(s_e[\varphi])$
- $\varphi_1, \dots, \varphi_n \models \psi$ iff $\min[\varphi_1] \dots [\varphi_n] \models \psi$

The discourse-oriented notion of support is defined in terms of subsistence not between states, rather between *contexts*. A context s_e subsists in context t_f , $s_e \prec t_f$ iff $s \prec t$ and $e + s \prec f + t$, where an environment e subsists in an environment f , $e \prec f$, iff $\forall f_j \in f : \exists e_i \in e : e_i \prec f_j$ ¹⁸. So, the definitions of support are the following:

¹⁸ e_i and f_j denote the environments e and f relative to a possibility i and j respectively.

Support:

- $s_e \approx \varphi$ iff $s_e \prec s_e[\varphi]$
- $\varphi_1, \dots, \varphi_n \approx \psi$ iff $\min[\varphi_1] \dots [\varphi_n] \approx \psi$

The last definition from Aloni, Beaver, et al. (2007) is that of presupposition:

Presupposition:

- $s_e[\partial\varphi] = s'_e$, iff $s_e[\varphi] = s'_e$ & $s_e \approx \varphi$, undefined otherwise.

Except for the specification of our domain of quantification, the definitions provided above are essentially Aloni's. The other definitions needed to complete the presentation of our account are that of **Refined Pertinence** (again, from Aloni, Beaver, et al. (2007) and which, we recall, is an amended notion of Roberts' *relevance*) and our "new" notion of Schoubye & Stokke's What is Said, that, since the present framework abandons the classical view on meaning, will not contain any reference to truth-conditional content. Rather, it will make use of the "dynamic" notion of updating potential.

Refined Pertinence: φ is *pertinent* in a context s_e iff:

- | | |
|---|------------|
| i. φ is consistent with s_e | (Quality) |
| ii. φ is not supported by s_e ($s_e \not\approx \varphi$) | (Quantity) |
| iii. φ is licensed in s_e | (Relation) |

Consistency: φ is consistent with s_e iff $s_e[\varphi] \neq \emptyset$ ψ is consistent with $\varphi_1, \dots, \varphi_n$ iff ψ is consistent with $s_e[\varphi_1] \dots [\varphi_n]$ Licensing: φ is licensed in s_e iff $s_e \models ?\varphi$ $?x\varphi$ is licensed in s_e iff $s_e \models ?x\varphi$

Our notion of *what is said* by a sentence S in a context c and relative to a question under discussion $?x\psi$ can now be mutated into a *dynamic* notion of WiS, which we will call **D-WiS**:

DYNAMIC WHAT IS SAID (D-WiS):

What is said by a sentence φ relative to a context s_e and an interrogative $?x\vec{\psi}$ (corresponding to Schoubye and Stokke (2016)'s Question under Discussion q_c) is $s_e[\varphi]$ s.t.:

- (i) φ is congruent after $?x\vec{\psi}$, and
- (ii) φ is pertinent in s_e .

Our definition translates as follows: the content of a sentence φ , relative to a context and a Question under Discussion (either raised by φ itself through its focus structure, or elsehow established in the discourse) is interpreted in terms of its *update potential* of the context s_e such that the sentence φ is both congruent after the question, and it is pertinent/relevant in the context.¹⁹

Before applying it to the analysis of descriptions, we want to exhibit the main features of our definition, while also showing its differences from the one in Schoubye and Stokke (2016);

- there is no mention of the notion of *minimal content*, or of the (reversed) entailment relation with WiS, which winks at the criticisms raised by Siu (2020). This does not amount to say that we renounce to compositional meaning, for, as already discussed, compositional meanings are actually very important, in that they are the *preconditions* for the update success of sentences into the dynamic framework. We do not need to take into account the minimal content of a sentence φ because *propositional fragments*, which are the starting point of Schoubye and Stokke (2016) that led them to incorporate the notion of minimal content into their definition, are fundamentally equivalent to the aforementioned *constituent answers*; and the latter, as we have seen, can be satisfactorily defined into the dynamic framework;
- condition (i) imposes on sentence φ the restriction of being *congruent* after the question under discussion (or after another sentence ψ , see

¹⁹Along the lines of Groenendijk (1998), “the notion of context ... could also be taken as a notion of semantic content, replacing the usual notion of a proposition as a set (property) of possible worlds” (Groenendijk 1998, footnote 5).

the previous section). The notion of congruence, apart from being related to that of focus, which we will extensively use in the application to descriptions, winks at Schoubye (2009)'s *consonance*, especially with respect to presupposition accommodation. This fact, together with our enlarged domain, allows us to successfully deal also with *empty* descriptions, as it will be shown below;

- (ii) imposes on sentence φ the restriction of being *pertinent* in the context. This, quite intuitively, resembles Schoubye and Stokke (2016)'s proviso of *relevant* proposition, but it has, in our opinion, two advantages; first, pertinence mirrors Gricean maxims in a more suitable and formal way, and this will help circumventing Siu's criticism with respect to both the undergeneration and the overgeneration problem. Secondly, there is no need to take the "weakest" relevant proposition, because the definition of the existential quantifier in terms of the "least upper bound" already does the job.

We can check now whether our account can satisfactorily account for the "meaning" of sentences containing (empty) descriptions when uttered against a context. Of course, by "meaning" we will always mean the dynamic "context change potential".

The subsections will be structured as follows. For both definite and indefinite descriptions, we will analyze their behavior in two different modes of presentation (unless otherwise specified);

- (i) the sentence has a focused constituent in subject position (e.g., "[The king of England]_F is white-haired" / "[A David Lynch movie]_F is filled with dreams");
- (ii) the sentence has a focused constituent in predicate position (e.g., "The king of England [is white-haired]_F" / "A David Lynch movie [is filled with dreams]_F"). This kind of focused sentence is, we recall, the default reading of a sentence uttered without any contextual information (Carlson 2015);

As regards predicative descriptions, we will discuss them along the same lines, focusing, for the sake of simplicity, only on cases in which the descriptions in predicative position are the definite ones;

- (iii) the sentence has a focused constituent in subject position (e.g., “[Ingrid Bergman]_F is the love of my life”);
- (iv) the sentence has a focused constituent in predicate position (e.g., “Ingrid Bergman [is the love of my life]_F”).

Lastly, in the next section, we will analyze the case of empty descriptions; in the light of our refined domain containing possible objects, we think it is better to dedicate a slightly more extended section to their analysis, in that we are going to address there some other issues from the presupposition literature in dynamic semantics.

3.3.1 Dynamic QUD and Definite Descriptions

Consider the following definite description, which we will call φ , and whose subject is the focused constituent:

(136) [The king of England]_F is white-haired.

For the conversational game to begin and proceed, we need to take into account the existential and uniqueness presuppositions of the definite description. Recall that presuppositions impose conditions on the input context that have to be met, in order for any sentence to be defined. So, we first proceed to update the context with those presuppositions.

$$- \boxed{\exists x Kx \wedge \forall y (Ky \supset y = x)}$$

This state is *conditional* on the subsequent updates, meaning that, if the presuppositions are met, then updates can occur; for the purpose of clarity, we will consider these presuppositions as being “outside” the box. Since, in Aloni, Beaver, et al. (2007), the presuppositions of descriptions are not explored, it is not completely clear how will things proceed if they are included in the information state s . Intuitively, this is the right thing to do; in the following, we will assume that they behave as if they were there, but we will not directly insert them in s , so that the updates will - hopefully - be clearer to the reader. At any rate, the results will be consistent notwithstanding this technical treatment of descriptions’ presuppositions.

Now, the sentence, via its focuses structure, consists in two parts: a presupposed background topic, that is the set of white-haired people, and an

assertive part, namely that the unique king of England is an element of that set.

$$- \partial[?xWx] \wedge \exists x(Kx \wedge \forall y(Ky \wedge y = x))$$

The presupposed part establishes the Question under Discussion q_{s_e} , namely $?x : W(x)$; so, we update the environment with this question.²⁰

$$- \langle \square, \boxed{x: Wx} \rangle$$

Lastly, we update the context with the assertive part of φ ; recall that φ is an existential statement, so it merges with the last topic in the environment, resulting in the following situation.

$$- \langle \boxed{x: Wx \wedge Kx \wedge \forall y(Ky \supset y = x)}, \boxed{x: Wx} \rangle$$

Intuitively, what the above context shows is that the information available is that there is a white-haired x that is also the *unique* king of England. The environment establishes that the topic under discussion is the set of white-haired people, and the information supplies us with the answer to that question, provided that the uniqueness and existence presuppositions are satisfied. We want to highlight that the same situation will have obtained, if we would have taken as φ the constituent answer “The king of France”, which is equivalent to a *propositional fragment*, as in Schoubye and Stokke (2016).

Now, we have to show that the sentence φ satisfies our conditions (i) and (ii) above in the definition of D-WiS.

For the time being, we do not need to consider congruence, here, in that there is not any pre-established Question under Discussion whose answers have to be defined after. However, in the following, we will discuss a case in which congruence will be checked. With respect to pertinence, we will proceed step by step, by checking whether φ is consistent, not supported and licensed. For clarity, we recall that $s_e = \langle \square, \boxed{x: Wx} \rangle$:

²⁰As it has been clarified to me in the review of the present work, in Aloni, Beaver, et al. (2007) presupposition accommodation is modeled via *Strawson entailment* as defined by Kai von Stechow: “An inference $p_1, \dots, p_n \therefore q$ is *Strawson-valid* iff the inference $p_1, \dots, p_n, S \therefore q$ is (classically) valid, where S is a premise stating that the presuppositions of all the statements involved are satisfied” (Von Stechow 1999, p. 105). So, when we establish what is entailed by a given sentence, attention is always restricted to states in which the presuppositions of that sentence are supported. I wish to thank Prof. Aloni for having clarified this point.

- φ is consistent with s_e iff $s_e[\varphi] \neq \emptyset$. Consistency is satisfied, in that the update does not bring to any contradiction.
- $s_e \not\vdash \varphi$ iff $s_e \not\supset s_e[\varphi]$. The two contexts to consider are:

$$\begin{aligned} - s_e &= \langle \Box, \boxed{x: Wx} \rangle \\ - s_e[\varphi] &= \langle \boxed{x: Wx \wedge Kx \wedge \forall y (Ky \supset y = x)}, \boxed{x: Wx} \rangle \end{aligned}$$

Intuitively, and as specified in (Aloni, Beaver, et al. 2007, p. 128), to check whether support holds we have to see if the new context either enlarges or narrows the initial one. It is clear that $s_e[\varphi]$ *narrows* the initial context, in that it restricts the possible assignments of x , compared to s_e . Namely, it eliminates the possibilities in which the unique king of England is *not* white-haired. This means that $s_e[\varphi]$ does not extend s_e , it rather narrows it down, therefore s_e does not support φ (if the presuppositions are met).

- φ is licensed in s_e iff $s_e \models ?\varphi$. φ is licensed, in that, intuitively, it addresses the questions under discussion by giving an answer to them (see Aloni, Beaver, et al. (2007, p. 129)).

So, we can say that φ is pertinent, therefore $\langle \boxed{x: Wx \wedge Kx \wedge \forall y (Ky \supset y = x)}, \boxed{x: Wx} \rangle$ is what is dynamically said by φ .

Now, consider the following definite description, again called φ , and whose focused constituent is the predicate term:

(137) The king of England [is white-haired]_F

According to Carlson (2015), this is the natural reading of this sentence, even if there were no contextual information provided or any intonational stress pronounced. So, we assume in the following that Carlson's hypothesis holds, and we will observe which conclusions can be derived from it.

The situation here is different, and in some sense more interesting, than the previous one: the focus structure of the sentence forces us to conclude that the presupposed topic part consists in a question like "What are the properties of the king of England?", so it is the set of *properties* which are satisfied by the English monarch, whereas the assertive part says that the monarch satisfies the property of being white-haired. We want to highlight that this question appears to be much sounder and correct than "Who is the king of England/Who is the king of England identical to?": it does not

appear that the Question under Discussion revolves around the *identity* of the English monarch with another entity, rather it is being asked which are the properties that are satisfied by Him. In this case, our second-order language is useful, in that we will be able to quantify over such properties.

As before, we first take into account the existential and uniqueness presuppositions of the sentence, but as before, we will not include them in the boxes.

φ is represented as follows:

$$- \partial[?P : \exists!xKx \wedge Px] \wedge \exists P(Px = Wx)^{21}$$

The presupposed part establishes the Question under Discussion q_{s_e} , namely $[?P : \exists!xKx \wedge Px]$; so, we update the environment with this question.

$$- \langle \square, \boxed{P: \exists!xKx \wedge Px} \rangle$$

Next, we update the context with the assertive part of φ ; recall that φ is an existential statement, so it merges with the last topic in the environment, resulting in the following situation.

$$- \langle \boxed{P: (\exists!xKx \wedge Px) \wedge Px = Wx}, \boxed{P: \exists!xKx \wedge Px} \rangle$$

Intuitively, the context shows that, against a topic of discussion in the environment which is centered around which properties are satisfied by the unique king of England, the information state asserts that, if the presuppositions about the king of England are satisfied, then the property satisfied by the monarch is that of being white-haired.

Now, we have to show that the sentence φ satisfies our conditions (i) and (ii) above in the definition of D-WiS.

We will proceed again step by step for checking whether pertinence holds as well, with $s_e = \langle \square, \boxed{P: \exists!xKx \wedge Px} \rangle$

- φ is consistent with s_e iff $s_e[\varphi] \neq \emptyset$. Since there are no contradictions brought by φ , it is consistent.
- $s_e \not\vdash \varphi$ iff $s_e \not\vdash s_e[\varphi]$. The two contexts are:

²¹For ease of reading, we will adopt from now on the standard abbreviation for denoting definite descriptions.

- $s_e = \langle \Box, \boxed{P: \exists!xKx \wedge Px} \rangle$
- $s_e[\varphi] = \langle \boxed{P: (\exists!xKx \wedge Px) \wedge Px = Wx}, \boxed{P: \exists!xKx \wedge Px} \rangle$

Similarly to the previous case, the context updated with φ narrows down the initial context, in that it limits the possible assignments of x , compared to those in s_e , by eliminating the possibilities in which the property satisfied by the English monarch is *not* that of being white-haired. This means that the updated context does not extend s_e , it restricts it, therefore s_e does not support φ (if the presuppositions are met).

- φ is licensed in s_e iff $s_e \models ?\varphi$. A sentence is licensed if it addresses the question under discussion by providing an answer, and this is actually the case.

So, we can say that φ is pertinent in the context s_e , therefore

$\langle \boxed{P: (\exists!xKx \wedge Px) \wedge Px = Wx}, \boxed{P: \exists!xKx \wedge Px} \rangle$ is what is dynamically said by φ .

3.3.2 Dynamic QUD and Indefinite Descriptions

Indefinite descriptions are, as a matter of fact, not a novelty in the dynamic semantics literature, in that the study of the so-called *donkey anaphora*, which led to the first development of dynamic semantics like, for example, Kamp's DRT, is strictly related to this kind of descriptions:

(138) Mary met a student₁ yesterday. He₁ needed help.

Subscripts symbolize that there is a co-referential anaphora between the indefinite description "a student" and the pronoun "he". By taking indefinite descriptions as quantificational statements, we incur in a problem in the interpretation. Since the interpretation process is compositional, we will have something like:

(139) $\exists x(student(x) \wedge met(m, x)) \wedge needhelp(x)$

The problem here is that the final occurrence of x is not bound, so, in the classical framework, we cannot render this sentence. The only way to do that is to assume that the discourse behind the sentence above is interpreted as a whole, but this is highly counter-intuitive. So, the standard

static classical interpretation began to be disfavored, while, at the same time, a more *dynamic* approach to meaning started to gain ground. One of the consequences of the dynamic approach is that, ultimately, indefinite descriptions are not quantificational, rather they simply contribute a dynamic variable assignment update. And this is mirrored by the definitions we have given in the previous section.

Now, we consider the following indefinite description, that we call φ , whose subject is the focused constituent.

(140) A [David Lynch movie]_F is filled with dreams.

φ 's presupposed topic background is the set of things which are filled with dreams, whereas the assertive part says that a movie by David Lynch is an element of that set. So, φ is represented as follows:

- $\partial[?x Dx] \wedge \exists x Lx$, where D = being filled with dreams and L = being a David Lynch movie.

The presupposed part establishes that q_{s_e} is precisely $?x : Dx$, therefore we update the environment with this question.

- $\langle \Box, \boxed{x: Dx} \rangle$

Lastly, we update the context with the assertive part.

- $\langle \boxed{x: Dx \wedge Lx}, \boxed{x: Dx} \rangle$

The resulting context, then, is such that the topic under discussion are the things which are filled with dreams, and the information establishes that David Lynch movies are those things are indeed filled with dreams. If – unfortunately for humanity – there were no David Lynch movies, then the context would crash.

Let us see whether this context satisfies our conditions (i) and (ii), so that it would be what is dynamically said by φ .

Congruence, again, will not enter into play here. With respect to pertinence, again, we will proceed step by step, specifying that $s_e = \langle \Box, \boxed{x: Dx} \rangle$ and $s_e[\varphi] = \langle \boxed{x: Dx \wedge Lx}, \boxed{x: Dx} \rangle$.

- φ is consistent with s_e iff $s_e[\varphi] \neq \emptyset$. Since there are no contradictions brought by an update with φ , it is consistent.

- $s_e \not\models \varphi$ iff $s_e \not\models s_e[\varphi]$. As it can be seen from s_e and $s_e[\varphi]$ defined above, support does not hold, in that the updated context restricts the assignments of x eliminating the possibilities in which a Lynch movie is *not* filled with dreams. Therefore, s_e does not support φ .
- φ is licensed in s_e iff $s_e \models ?\varphi$. Since φ addresses the question under discussion by providing an answer, φ is licensed.

So, we can conclude that φ is pertinent in the context s_e , therefore

$\langle \boxed{x: Dx \wedge Lx}, \boxed{x: Dx} \rangle$ is what is dynamically said by φ .

Now, we consider the indefinite description φ whose focused constituent is the predicate term.

(141) A David Lynch movie [is filled with dreams]_F

The presupposed topic of (141) is the set of properties satisfied by a David Lynch movie, and the assertive part says that this property is that of being filled with dreams.

- $\partial[?P : \exists x Lx \wedge Px] \wedge \exists P(Px = Dx)$

The background topic establishes that the Question under Discussion is $(?P : \exists x Lx \wedge Px)$, so we can update the environment with this question.

- $\langle \square, \boxed{P: \exists x Lx \wedge Px} \rangle$

Lastly, we update with the assertive part of φ , obtaining the following situation:

- $\langle \boxed{P: (\exists x Lx \wedge Px) \wedge Px = Dx}, \boxed{P: \exists x Lx \wedge Px} \rangle$

This context shows that the topic in the environment is the properties which hold for David Lynch movies, whereas the information states assert that such movies have the property of being filled with dreams. Intuitively, it is exactly what an utterer would convey.

φ is congruent and pertinent in the context s_e , for the same reasons according to which the previous examples are congruent and pertinent. So, we can conclude that $\langle \boxed{P: (\exists x Lx \wedge Px) \wedge Px = Dx}, \boxed{P: \exists x Lx \wedge Px} \rangle$ is what is dynamically said by φ .

Before moving to the next subsection, we would like to address the criticism which is raised by Charlie Siu in Siu (2020) with respect to the WiS-account presented in Schoubye and Stokke (2016), and show that, thanks to the machinery introduced by Aloni, Beaver, et al. (2007), the problems of under and overgeneration can be dealt with. The motivation for discussing Siu's criticism here relies on the fact that the example of overgeneration he puts forward involves an indefinite description; with respect to undergeneration, on the other hand, our proposed solution is of a more general nature, as we will see shortly.

We repeat below the criticism which Siu raises against Schoubye and Stokke (2016)'s account. Consider the following dialogue:

- a. Anne: Does every student like Tipper?
- b. Bob: A student likes Tipper.

Under the assumption that Bob knows/understands what Anne is asking, his utterance is *saying* that a student likes Tipper, but he is *implying*, via the Quantity maxim, that Tipper is not in the like of *every* student. However, following Schoubye and Stokke (2016), the minimal proposition expressed by Bob's utterance is entailed by the relevant proposition that every student likes Tipper; this in turn means that Bob says that every student likes Tipper. But this does not appear to be the case, hence we are faced with an overgeneration problem.

What is happening here is that the existential quantifier is taken to mean, from the speaker's perspective, something like "Some *but not all* students like Tipper". That is the so-called *scalar implicature* (Horn 1972); a quantifier like "some" creates a scale of the form $\text{some} < \text{many} < \text{most} < \text{all}$. The ordering relation in this scale is such that $\text{all} \subseteq \text{some}$; so, a sentence containing the upper element in a scale ("Every student likes Tipper") asymmetrically entails a sentence containing the lower elements in that scale ("Some students like/A student likes Tipper"). So, if one decides to utter a sentence like "A student likes Tipper", thus using the lowest element in the scale, she's conveying the information that *not every* student likes Tipper. In fact, if she would had been completely informative and rational, she would have uttered the universal counterpart.

As we have mentioned in a previous footnote, we have overshadowed an

element of discussion in Aloni, Beaver, et al. (2007), namely the adverb of quantification *only*: *only* is a focus-sensitive expression which is treated as an indexed sentential operator $only_{x_1, \dots, x_n}$, where $x_1, \dots, x_n$ are focus variables. This definition mirrors a situation according to which a sentence like “Only [Bob]_F likes Tipper” takes the focus-operator *only* to range over the *alternatives* which are triggered by the focused constituent “Bob” (Bob likes Tipper, Mike likes Tipper, etc.), and selects “Bob” as the unique satisfier of that predicate. So, the “scalarity” of *only* is in an interesting sense coded within the semantic apparatus, while retaining its pragmatic effects, those of excluding alternatives.²²

Having said this, we could define another focus-sensitive operator $\exists_{\vec{x}}$, whose meaning is exactly that derived from a scalar implicature, namely “Some but not all”, and which will range over focused alternatives. We can imagine that its definition is pretty intuitive:

$$\exists_{\vec{x}}[\varphi(x)] := \exists x \varphi(x) \wedge \sim \forall x \varphi(x)$$

So, a sentence like $\exists_{\vec{x}}[\varphi(x)]$, given that it is a focused statement, will be constituted of a presupposed part and an assertive part, namely: $\partial[?x\varphi(x)] \wedge \exists_{\vec{x}}x[\varphi(x)]$.

The context change potential of a formula bound by this operator will tentatively be the following:

$$s_e[\exists_{\vec{x}}(\varphi)] = \left\{ j \in s \left| \begin{array}{l} \exists i (j \prec_{\vec{x}} i \wedge i \prec S(s_e[\exists \vec{x} \psi_1]) \\ \wedge \exists i (j \prec_{\vec{x}} i \wedge i \prec S(s_e[\exists \vec{x} \psi_2]) \\ \wedge \exists i (j \prec_{\vec{x}} i \wedge i \prec S(s_e[\exists \vec{x} \psi_1]) \wedge i \not\prec S(s_e[\exists \vec{x} \psi_2])) \end{array} \right. \right\}_e$$

The intuitive explanation of this definition is that there is at least one possibility j , defined over the focused variable x , which satisfies the question, providing an answer to it ($\exists \vec{x} \psi_1$); there’s at least one possibility which satisfies the assertive part ($\exists \vec{x} \psi_2$); there’s at least one possibility which is an answer to the question, but *does not* satisfy the assertive part.

²²As for “some” and “all”, “only” appears in the lowest position in the same scale.

Let's check whether this definition works for the case under scrutiny. First, we can observe that, in the light of Anne's question, the most prominent reading for Bob's reply is "[A student]_F likes Tipper". So, if the existential presupposition of the indefinite description is met, the context and the sentence will be as follows:

- $\langle \Box, \boxed{\forall x(Sx \supset Lxt)} \rangle$
- $\partial[?xLxt] \wedge \exists_{\neg x}(Sx)$

Notice that the context already establishes that there is a Question under Discussion, namely the polar question raised by Anne, which is supported, if the context already supports the existence of students, and the existence of students who like Tipper.

We then update the context with the Question under Discussion $?xLxt$, thus having:

- $\langle \Box, \boxed{\forall x(Sx \supset Lxt)}, \boxed{x: Lxt} \rangle$

Notice that the environment now consists in a series of two information states; the Question under Discussion raised by the focus structure of the sentence is supported in the context, in that it is entailed by the topic already present in the environment.

Now, an update with the assertive part $\exists_{\neg x}(Sx)$ will provide an answer to the polar question encapsulated in the information state, thus being pertinent and congruent. Congruence, in this case, is actually important, in that we have, in the context, a Question under Discussion, prior to the one triggered by focus. And congruence holds, in that the presupposition of "[A student]_F likes Tipper" is defined after the polar question raised by Anne; moreover, it is not over- or under-focused with respect to it. The final situation is depicted as follows:

- $\langle \boxed{x: Lxt \wedge Sx \wedge \sim \forall x(Sx \supset Lxt)}, \boxed{\forall x(Sx \supset Lxt)}, \boxed{x: Lxt} \rangle$

As for the above cases, the resulting context is dynamically what is said by the sentence "[A student]_F likes Tipper".

We want to stress the fact that, even though it is possible to define this – and possibly others – operator with a heavy pragmatic fashion, one could

argue that this operation is not significant from a theoretical point of view, and does not represent a serious advantage with respect to Schoubye and Stokke (2016), in the sense that the same enterprise could have been pursued within S&S's framework, so to save them from Siu's criticism.

As we have explained in the end of the previous chapter, we believe that overgeneration charges are unjust, for the purpose of Schoubye and Stokke (2016) is to provide a definition of *what is said* by a proposition, rather than one of *what is implied*. Within their framework, the sentence "[A student]_F likes Tipper" *per se* is relevant only insofar as it is answer to a sub-question, derivable via the question-answer congruence principle, whose answers are "pointed towards" the resolution of the bigger QUD, namely, "Who likes Tipper?". In their paper, Schoubye and Stokke do not explicitly discuss this case of overgeneration, rather they address, as we have specified in the previous chapter, another instance of overgeneration, which we repeat below:

- (99) Is Mary awake?
- (100) Someone is awake.

By noticing that (100) can be felicitously uttered only with focus on the subject ([Someone]_F is awake), the authors conclude that the sentence is relevant because it answers to the sub-question triggered by the focus structure, namely "Who is awake?", who is different yet related to (99). Even though we agree with both the fact that (100) can only be uttered with that intonational pattern, and that it is an answer to a different question under discussion, we do not agree with the authors' conclusion that (100) is relevant; we believe that intuition goes in the opposite direction, and in fact (100) is not relevantly addressing (99). The reason is that (100) triggers, just as in the example of the scalar implicature above, a *conversational implicature* of the form "Someone is awake, but I don't know who"; and implicatures are generated, on the hearers' side, when the speaker, assumed to be rational and cooperative, still behaves underinformatively.

An advantage of our framework is that it can successfully deal with this problem in a, we believe, more fine-grained way. Notice, first, that in Aloni, Beaver, et al. (2007), the following sequence is felicitous, similarly to the

example we have discussed when we have introduced the notion of licensing, and contrary to what happens in Groenendijk's partition theory;

- Who is awake?
- Is Mary awake? (relevant)
- [Someone]_F is awake. (relevant)

With the help of the notion of pertinence, we can also be able to conclude that (100) is *not* pertinent. We repeat the pair below:

- (99) Is Mary awake?
- (100') [Someone]_F is awake.

Since the dialogue already makes clear that the Question under Discussion is (99), we proceed with updating the context with it:

- $\langle \square, \boxed{A(m)} \rangle$

Since (100') is a focused statement, we know that it consists in a presupposed and an assertive part;

- $\partial(?xAx) \wedge \exists xAx$

Now, we should proceed in updating the context with the question triggered by the focused constituent; crucially, however, the update cannot occur, hence the conversational game stops.

The reason why the following situation cannot obtain

$$\langle \square, \boxed{A(m)}, \boxed{x: Ax} \rangle$$

is that the second interrogative statement is *not* supported in the context. Recall that an interrogative is supported in a context iff the topic it introduces is already entailed in the input context, either by the input state or by an old topic in the environment; but the old topic in the environment does not entail the new one, in that it is not the case that any complete answer to $?A(m)$ is a complete answer to $?xAx$. So, thanks to the notion of support, which mirrors Grice's Maxim of Quantity, we can conclude that (100) is not a pertinent answer to (99), as, we believe, intuition would claim.

We can turn now to the undergeneration problem. We have stated, in the previous chapter, that Siu's criticism is, in this case, more serious, in that

it stems from the very definition of what-is-said developed in Schoubye and Stokke (2016); more specifically, it derives from the non-compositional character of what is said, in comparison with the composition that occurs between the minimal content and the Question under Discussion.

We repeat below the dialogue which exemplifies the undergeneration problem:

(103) Is Tipper ready and strong enough to kill a dragon?

(104) Tipper is ready but he is not strong enough.

In our framework, the problem does not arise, in that we dispense the notion of minimal content. Moreover, since (104) is made up of two *constituent answers*, we already know that, in Aloni, Beaver, et al. (2007)'s account, and originally in Dekker (2002), such items can be successfully dealt with.

We can take (103) as two different questions, so that (104) will consist in a yes- and no-answer. Since constituent answers are defined as existential statements whose domain is restricted by the questions they answer to, we necessarily have that "Tipper is ready" stands for "Tipper is ready to kill a dragon" and that "Tipper is not strong enough" stands for "Tipper is not strong enough to kill a dragon". In this way, we avoid Schoubye and Stokke (2016)'s unwelcome result according to which (104) means "Tipper is ready for something but he is not strong enough for something".²³

3.3.3 Dynamic QUD and Predicative Descriptions

Consider the following sentence containing a predicative definite description φ , in which the focused constituent is the subject term:

²³We would like to point out that, in Siu (2020), it is acknowledged that the procedure of splitting (103) into two different sub-questions, and then providing answers to each of them, can be a solution also for Schoubye & Stokke's account, but it would lack generality. In fact, Siu considers another dialogue, in which the same problem arises and in which the question cannot be reasonably split:

- Is everyone who is ready to kill a dragon strong enough to do so?
- Whoever is ready is strong enough. (Siu 2020, p. 4)

Thanks to the framework we have adopted, however, the dialogue above would not receive a treatment different from the one in (103)-(104), and the same solution can be provided, hence solving the undergeneration problem.

(142) [Ingrid Bergman]_F is the love of my life.

The conversation starts if the existential and uniqueness presuppositions of the definite description are met.

$$- \boxed{\exists!xLx}$$

Following the focus structure of φ , we infer that the sentence consists in a background topic, which is the set of people who are the love of my life, and an assertive part, which says that Ingrid Bergman is the element of that set.

$$- \partial[?y : \exists!xLx \wedge x = y] \wedge \exists y(y = i)$$

So, the environment is updated with the Question under Discussion expressed by the presupposition:

$$- \langle \Box, \boxed{y : \exists!xLx \wedge x = y} \rangle$$

Lastly, we update the context with the assertive part of the sentence. The result is the following context:

$$- \langle \boxed{y : \exists!xLx \wedge y = i}, \boxed{y : \exists!xLx \wedge x = y} \rangle$$

Intuitively, this is the correct result, for, against a topic under discussion which is the set of people who are the unique love of my life, the information establishes that, if there exists this unique love x , then the assignment maps the variable x to the singular term i which denotes Ingrid Bergman.

Pertinence obtains, the reasons being the same as the previous ones; therefore, $\langle \boxed{y : \exists!xLx \wedge y = i}, \boxed{y : \exists!xLx \wedge x = y} \rangle$ is what is dynamically said by the sentence φ .

We examine now a sentence containing a predicative definite description φ in which the focused constituent is indeed the description:

(143) Ingrid Bergman [is the love of my life]_F

Existential and uniqueness presuppositions of the descriptions have to be met, for the conversation to proceed.

$$- \boxed{\exists!xLx}$$

The sentence above has as background topic a question “Who is Ingrid Bergman?”, therefore, *via* our second-order language, we identify the topic as the set of properties which hold for Ingrid Bergman. The assertive part, on the other hand, says that the property holding for her is that of being the love of my life. We formalize this sentence, and then show the update of the context with the Question under Discussion.

- $\partial[?P : \exists x(x = i) \wedge Px] \wedge \exists P(P = \lambda y \exists! x(Lx \wedge x = y))$
- $\langle \Box, \boxed{P: \exists x(x = i) \wedge Px} \rangle$

An update with the assertive part of φ will result in the following context:

- $\langle \boxed{P: (\exists x(x = i) \wedge Px) \wedge Pi = Li}, \boxed{P: \exists x(x = i) \wedge Px} \rangle$

The context shows correctly that, given the topic revolving around the properties which apply to Ingrid Bergman, the information states affirm that Ingrid Bergman satisfies the property of being the unique love of my life. Congruence and pertinence hold, therefore

$\langle \boxed{P: (\exists x(x = i) \supset Px) \wedge Pi = Li}, \boxed{P: \exists x(x = i) \supset Px} \rangle$ is what is dynamically said by φ .

3.4 Updating with Empty Presuppositions

So far, we have discussed cases in which (in)definite and predicative descriptions are analyzed against a dynamic version of the Question under Discussion approach; we think that this analysis succeeds in accounting for both the relevance of a sentence containing a description uttered by a discourse participant, and also for other pragmatically enriched meanings that such sentences have within the discourse context, like the existential and uniqueness presuppositions of definites, and the *scalar implicature* of an indefinite like “A student likes Tipper”, uttered against a QuD “Does every student like Tipper?”.

The logical instruments that we have used for our previous analyses have extended the machinery in Aloni, Beaver, et al. (2007) in – we hope – a fruitful way. We have proposed, as a matter of fact, a further amendment to that machinery, which we have not yet employed: an *extended domain* of individuals containing possible objects. Since the purpose of this section

is to observe the dynamic behavior of definite descriptions containing an *empty term*, this is where this element comes into play.

This adjustment, together with the context updating definition of the existential quantifier which we have already introduced, will allow, in our opinion, to show that also sentences containing empty descriptions can be considered to be *relevant* assertions, when evaluated against a well-suited context. Recall that, in Schoubye (2009), sentences containing empty descriptions cannot be considered to be relevant assertions, because any semantics for questions (Groenendijk's partition theory or Hamblin's alternative semantics) does not allow for *partial functions* (*contra* Gawron (1996), for example) and needs any (denoting) individuals into the domain to be mapped to truth-values. Given these conditions, it is clear that any sentence with empty terms cannot have a truth-value, hence they cannot be considered answers to a question, and they will not be relevant. To overcome this technical issue, Schoubye proposes to insert the condition of *consonance*, which appears an even more pragmatic version of relevance, and which ultimately helps explaining why an assertion containing an empty term/description can be considered – at least – a sound attempt to answer the question under discussion.

The purpose of Schoubye (2009) is, in some sense, different from ours, in that the notion of consonance is introduced to account for *people's intuitions* on sentences containing empty description, occurring in particular syntactic environments or sentential positions (see the previous chapters for a more in-depth discussion). People's intuitions are meant of course as *truth-value* intuitions; but, since our analysis is couched in a dynamic framework, we will not focus on this kind of intuitions, rather we are going to interpret speakers' utterances of empty sentences as *contextually sound/pertinent* assertions in the light of a given context. To summarize our stance: "observe not judge."

We think that, if a context makes clear that the discussion is somehow centered around non-referring individuals, any assertions about them is relevant and pertinent, and should not be dismantled because of its semantic status. Clearly, a standard dynamic account faces a problem: since no dynamic approach allows for empty terms, any update with an empty sentence brings to an *update crash*.

Take, for example, a context *à la* Aloni, Beaver, et al. (2007); the elements of information states are possibilities i , which are pairs of worlds and assignments $\langle w, g \rangle$. All the individuals $d \in D$ belong to those worlds w , and such individuals are taken to be *denoting* individuals. Therefore, since the context has this requirement, a proposed update with (for example) a sentence like “Santa Claus is white-haired” will bring to a crash, in that there will be *no* assignment in the information state which will map that individual to that relevant predicate, because there is no such term referring to that individual (see the definitions above for atomic sentences). The context will then result inconsistent, hence the discussion game will stop and conversation cannot proceed.

The same thing can be said with respect to quantified expressions like, indeed, definite descriptions, in particular with respect to their *existential pre-suppositions*; the random assignment which the existential quantifier introduces is defined as $\{\langle w, g[x/d] \rangle : \langle w, g \rangle \in s \ \& \ d \in D\}$, so the *proviso* that $d \in D$ prevents us from assigning to x the unique element which is the king of France. So, again, there will be no king in the world which can be assigned to a predicate, therefore we incur in an update crash, and conversation stops.

These aspects represent the motivation for expanding the possibilities of our domain;²⁴ we have already highlighted the *pragmatic* motivation for this amendment, and we’d like to stress even more that the semantic apparatus of Aloni, Beaver, et al. (2007) will not suffer from this amendment. This change in the definitions is *pre-theoretical*, and it is an attempt, in our opinion, to encapsulate even more aspects of our everyday discourse. Most importantly, the machinery already contains an extremely helpful item for

²⁴In the history of philosophy of language and logic, there have been several attempts to free classical logic from the burden of referentiality. Some of the most interesting achievements, in this respect, are Karel Lambert’s *free logic*, that is, a logic devoid of existence assumptions with respect to its singular and general terms (Lambert 1967), and *Meinongian logics*, which are free logics with an extra set of quantifiers Π and Σ whose range goes beyond the usual domain of quantification, that is, they do not have an existential reading (see, among others, Routley (1980)). Our purpose here is not, of course, proposing an alternative to a classical apparatus; one might say that the existential quantifier in the dynamic account has vague resemblances to the Meinongian quantifier Σ , in that the scope of both quantifiers is different from the classical one. However, we do not want to pursue this analogy further, because referentiality is tied to the notion of truth and truth-values. Since, in the dynamic framework, we do not work with these definitions, we don’t need to discuss this yet interesting similarity.

talking about the king of France, that is, the dynamic existential quantifier, therefore we think it is worth using it for our beloved French monarch.

In the light of the discussion in the previous subsection, the following will be shorter, in that the machinery involved is the same, as well as the update processes. The crucial difference consists, as it can be expected, in the presuppositions of the empty description, which, in any standard account, cannot be accommodated, therefore, in a dynamic framework, they will bring to a context crash. However, as we have highlighted above, there is an intuitive sense according to which also sentences containing empty descriptions can be *relevant answers* to certain questions under discussion, contrary to what the background semantics forces us to conclude. From the perspective of the machinery, nothing prevents us from concluding that those answers can be relevant, as it will be shown below. A further thing to consider is whether the participants in the discourse are willing to accept said answers: this point will be addressed in the end of this subsection.

Consider the infamous sentence about the king of France, in which the focused constituent is *le Roi* himself (repeated from the second chapter):

(91) [The king of France]_F is bald

All the update processes, with the proviso that the presuppositions of the description are accommodated, bring to the following context, which represents what is dynamically said by the sentence above:

$$- \langle \boxed{x: Bx \wedge Kx \wedge \forall y(Ky \supset y = x)}, \boxed{x: Bx} \rangle$$

The context change potential of the existential statement establishes, as it was shown earlier in the chapter, a *random* assignment to the variables it ranges over; in the light of our enlarged domain containing possible individuals and predicates whose extension can be empty, the machinery does not forbid to conclude that this random assignment, put in layman terms, *is directed towards* the part of the domain containing possibles. There is no need, contrary to what we have done in the case of scalar implicatures, to define another existential quantifier whose range is defined exclusively on such particular entities (or properties, working in a second-order language), because the domain, together with the dynamic definition of $\exists$, is already suited for doing this job.

The context above says, apart from representing a congruent and relevant assertion (again, *if* the presuppositions are met), another interesting thing, in our opinion: notice that the topic in the environment about bald people does not *per se* force us to shift our discussion towards the “realm of possible objects”, since we are just enquiring about the people who are bald. Things would have been different if, on the other hand, we had focused the predicate term, thus implying that the question under discussion is the set of properties holding for the king of France.

From the participants’ perspective, and that is our final point of discussion which would deserve further investigation, the situation seems to be the following: an interrogator, by using Groenendijk’s terms, is asking who is bald, therefore intuitively “sticking” to the actual world. The witness answers by saying that the king of France, a non-existent entity, falls under that predicate. If this is the situation, then the interrogator will not consider the witness’ assertion as relevant, therefore she would reject it and the conversation would stop. However, it could be tentatively argued that the witness is actually uttering a *counterfactual* expression of the form “If there were a king of France, he would be bald”. The witness would be adhering to the topic introduced by the interrogator, in that they both agree that the discussion is centered in the actual world, but the former proposes to update the context with the counterfactual assumption on the French monarch. This update, however, brings intuitively to a “clash of worlds”, in that the interrogator is quantifying over the actual domain, whereas the witness is extending her range to possible individuals. Our tentative conclusion is that this clash, if we analyze this issue from a classical perspective, brings to an intuition of *falsity* with respect to a sentence like “[The king of France]_F is bald”. To observe this, notice the following sentence which we have already discussed in the previous chapters and which, according to Strawson, elicits a falsity judgment (Strawson 1964):

(144) The Exhibition was visited [by the king of France]_F

The focused constituent is not Strawson’s original, but here we are always assuming that Carlson’s hypothesis is correct, hence by default a relational sentence like the one above receives an intonational stress on the predicate term. Moreover, it appears clear, given its syntactic structure, that the sen-

tence is a possible answer to the question “Who visited the Exhibition?”, which is then the topic.

If we analyze Strawson’s sentence in dynamic terms, we arrive at the following context:

$$- \langle \boxed{x: \forall x \wedge Kx \wedge \forall y (Ky \supset y = x)}, \boxed{x: \forall x} \rangle$$

And this situation is precisely the same as the one for “[The king of France]_F is bald”.

Recall that Strawson justifies the intuition of falsity by arguing that reference failure only occurs when the description is the *subject-term* of the sentence. Subsequent literature argues that what Strawson meant by “subject-term” was actually topic/question under discussion: if this is correct, then we agree with Strawson, in that the descriptions above are not the topic under discussion, they rather constitute the focus, hence the new information conveyed by the sentence. And which, going back to the discussion above, could *trigger* a counterfactual reading. At any rate, we cannot extend these insights here; they will hopefully represent a starting point for future research.²⁵

3.5 A Side Note on Dynamic QUD and Slurs

This last section will expand on the previous notes in the second chapter devoted to slurring expressions, by showing that our account can also encapsulate the issues revolving around these expressions. We have decided to discuss this topic here, in that some of the elements introduced in the previous subsection on empty descriptions will be reflected also in the analysis of slurs.

²⁵In Schlenker (2004), the author argues that conditional statements like *if p, then q* can be analyzed as definite descriptions. In his framework, the premise works as an expression which selects the most relevant possible world in which *p* holds, precisely like a definite description selects a singular entity in the actual world. Selection works through *choice functions*, which assign to any set the most “salient” element. As it emerges from his paper, Schlenker’s framework can take into account several aspect of discourse, some of which we have already encountered in our discussion, like anaphorical relations and saliency, which is related to the notion of topic/question under discussion. I wish to thank my supervisor for the insightful observation on this possible counterfactual reading of the description, and a friend and colleague of mine, whose encyclopedical knowledge of counterfactuals stimulated me to raise this issue. The fault of not having discussed it in-depth is, of course, exclusively mine.

Consider the following sentence, in which the derogatory expression is, as a matter of fact, a predicative indefinite description (repeated from the second chapter):

(97) Renato [is a *terrone*]_F.

In the light of the above focus structure, the sentence is divided into a presupposed part, which establishes the topic under discussion, namely the set of properties which are satisfied by Renato, and an assertive part, that is that he satisfies the property of being a *terrone*.

$$- \partial[?P : \exists x(x = r) \wedge Px] \wedge \exists P(Px = Tx)$$

Following Cepollaro (2015), we hold that the utterance of a slur carries the presupposition about its derogatory content; for the case under scrutiny, “a *terrone*” carries the presupposition that all Southern Italian people are despicable [$\forall x(Sx \supset Dx)$]. So, when we update the context with the existential presupposition of “a *terrone*”, as a matter of fact we should update the context also with the derogatory presupposition. So, *if* the presuppositions are met, the final context will result in the following situation:

$$- \langle \boxed{P: (\exists x(x = r) \wedge Px) \wedge \forall x(Sx \supset Dx) \wedge Pr = Tr}, \boxed{P: \exists x(x = r) \wedge Px} \rangle$$

The context depicts that the information state of the utterer of the sentence, against the topic under discussion which consists in the properties satisfied by Renato, consists in an answer to the question, namely that the property which Renato satisfies is that of being a *terrone*. The answer is pertinent, however, only if the presuppositions with respect to the existence of such predicate and with respect to the derogatory content of the slur are accommodated. Even though morally disgusting, we believe that this situation is intuitively correct, in that, from a purely discourse perspective, a person who utters “Renato is a *terrone*”, in response to a question about the properties he satisfies, is still providing a relevant answer, she’s addressing the question under discussion by providing a licensed, consistent and un-supported assertion.

Notice that the system thus described predicts that the same conclusions can be derived if the utterance is “Renato is not a *terrone*”; and this is,

from our point of view, a welcome result. Recall that we are endorsing Cepollaro's view, according to which slurs exhibit the behavior, shared with other presuppositions, of projecting under negation; a sentence like "Renato is not a *terrone*" retains the derogatory content of the slur, unless the utterer explicitly acts as to cancel the offensive part. So, in our view, and together with the presuppositional proponents, the derogatory content of the slur is still a presupposed component of the sentence under investigation; what is negated is rather the literal meaning of being from Southern Italy. Unless the interlocutor actively distances herself from the derogatory part of her utterance.

In the second chapter, we have proposed that, if one wants to hold a semantic value on slurs within a QUD-based approach to what is said, then she is forced to appeal to the notion of *consonance*: under that account, issues of relevance cannot be established in the first place, with respect to a sentence like "Renato is a *terrone*", because there is an empty-predicate in the sentence, hence no assignment holds, hence this will never be an answer to a question. However, if we add the constraint of consonance, we can at least account for the intuition that a person who utters that sentence is nonetheless trying to address the question under discussion. What we have in this subsection is a small extension of those observations, couched in the dynamic framework whose machinery does not have the limitations of the background semantics of Schoubye and Stokke (2016).

The resulting context is, in our opinion, highly consistent with the literature on derogatory expressions: first, however, we highlight that the machinery alone does not prevent us from concluding that the assertion "Renato is a *terrone*" is relevant. Again, if your preferred view is semantic in nature, we can say that a predicate like "being a *terrone*" suffers from *moral defectiveness* (Picardi 2006; Picardi 2007); in her semantic account, she proposes to treat slurs as predicates under which *nothing* falls, meaning that they cannot be applied to any human, precisely in the light of their defective status. Nonetheless, a predicate under which nothing falls is still a predicate; treating a predicate like "being a *terrone*" as vacuous is just the same as dealing with a predicate like "being the unique king of France". We can say that nothing falls under both concepts, but still, they are concepts about which we can *discuss*. So, our machinery with the enlarged do-

main will allow us to eventually quantify over this empty-extended predicate.

In a presuppositional view, we observe that the utterer is proposing to update the information states in the context with the proposition that Southern Italian people are despicable because of it. And, were the sentence being focused on the subject term, there would have been a topic under discussion in the environment about the set of x that are *terrone*. Whether or not the update is fully successful, at any rate, cannot be ascertained by the machinery alone, which entitles us to conclude that the update can occur (both if you hold the semantic view or the presuppositional one); the final acceptance depends on the participants in the discourse. Someone who listens to slurs can decide to interrupt the conversation, by pointing out the racist behavior of the utterer, hence refusing to proceed with the interrogation game. And, *mutatis mutandis*, the same pattern of reasoning applies to the accommodation of the existential presupposition of the indefinite “a *terrone*”.²⁶

3.6 Concluding Remarks

In this chapter, we have explored the possibility of implementing a dynamic semantics for questions, topic and focus to the QuD-based approach of meaning of Schoubye and Stokke (2016), for analyzing descriptions. The motivations for doing so are both of a programmatic and of a pragmatic nature, in that we believe that a conversational approach like the one of Schoubye and Stokke cannot be considered statically. Conversation is a constant flow of information, which dynamically changes the information available to speakers and the topics which are sequentially under discussion. In the light of this, we have decided to employ a dynamic semantics. All these things have been done under the strong desire of bringing the

²⁶According to Cepollaro, the presupposition which is triggered by the slur is informative, and the participants in the discourse can decide to include it or not in the common ground. And, if they do not share the racist attitude of the speaker, they are forced to say something. But besides informativity, something more happens when someone utters a slur: uttering a slur is a violation of a sociolinguistic taboo, or put it differently, a violation of a “language game” in which the rules specify that societies reject discrimination based on race, nationality, etc. The Wittgensteinian metaphor fits perfectly, in our opinion, both with this definition of slurs, and with the notion of common ground meant in the Stalnakerian way.

semantics and the pragmatics of language closer together.

In addition to that, some of the limitations that, we believe, Schoubye and Stokke (2016)'s account suffer from (Groenendijk's partition theory as their background semantics, the relation between WiS and minimal content, and the impossibility of distinguishing between saying and implying), can be engaged within a suitable dynamic framework.

The dynamic framework we have employed is Aloni et al.'s update semantics for topic and focus; its elegant machinery has allowed us to code several issues which pertain not only on the semantic content of descriptions, but also to the pragmatics of discourse. We have shown that we can renounce the cloudy relation between WiS and minimal content, in that the semantically-coded notions of pertinence and context-update are perfect replacements. We have discussed how Groenendijk's partition theory has some counter-intuitive consequences, which Aloni et al.'s framework surpass, and this is *per se* a sound motivation to embrace this alternative framework. Lastly, with respect to the distinction between saying and implying, we have seen that operators can be defined, in Aloni, Beaver, et al. (2007)'s framework, which can successfully deal with this issue.

Regarding this last point, one issue remains to be addressed. In the second chapter, we have observed, in the QuD-based approach of meaning, the behavior of an indefinite description under different uses. Consider for example the referential use of an indefinite description, which is, we recall, defined as follows:

- An indefinite description "a(n) *F*" is being used *referentially* in an utterance of "An *F* is *G*" iff (i) the speaker intends to communicate something about a particular individual *i*, and (ii) the speaker is using "an *F*" intending that her audience shall realize that it is *i* that she intends to communicate something about.

We have observed, against a context in which we both notice Barney, whom we know to be a playboy, and I see Barney flirting with your sister, that my sentence "A playboy is flirting with your sister" generates an implicature in the hearer's mind that it is a particular individual, Barney, who is flirting with your sister.

The derivation, in Schoubye and Stokke (2016), can be accounted for in the light of the notion of common ground; under the assumption that participants are rational and cooperative, the person who utters “A playboy is flirting with your sister” is expecting the hearer to further restrict the common ground, eliminating the worlds in which playboys that are not Barney are flirting with her sister. However, it should be noted that the notion of relevance taken from Roberts (2012) is under-specified compared to the notion of pertinence of Aloni, Beaver, et al. (2007), which we have used in the present chapter; in fact, Roberts’ relevance is equivalent to Aloni et al.’s notion of licensing, which is, by the way, only one of three conditions that a relevant sentence has to satisfy.

Under Roberts’ notion of relevance, a sentence like “A playboy is flirting with your sister” turns out to be indeed relevant, in that it provides a partial answer to the question “Who is flirting with your sister?”. But it is actually the notion of support which plays the most important role, here.

In fact, support, we recall, mirrors Grice’s Maxim of Quantity; if I utter a sentence like “A playboy is flirting with your sister”, when I actually know that it is Barney who is flirting with your sister, I am being *under-informative*, hence violating the Maxim. However, this does not mean the sentence is not supported, in the dynamic approach; in fact, the sentence is supported, hence non-informative, only according to my own *mental state*, and not according to the context shared with the participants in the discourse. This is precisely the same situation which we have described in Schoubye’s framework, and which gives rise to the implicature.

But Aloni, Beaver, et al. (2007)’s framework comes with instruments which could help us better framing this implicature phenomenon; we will only hint at the possible solution, however, hopefully destining further investigation in future research. We could argue that a focus-sensitive operator can be defined, precisely like it has been done for *only_x* or $\exists_{\bar{x}}$, which can deal with this kind of implicature.²⁷ Again, this proposal is in the stream of

²⁷Interestingly enough, and in relation to what we were discussing in the second chapter, the meaning of “only” has been recently at the center of lively debate. A sentence containing “only” consists in two different parts:

- “Only Lucy came to the party”
- **prejacent implication**: Lucy came to the party.
- **exclusive implication**: No one other than Lucy came to the party.

encapsulating, in a unified account, both semantic and pragmatic aspects of language; the risk, of course, is that, if we want to have a framework able to account for all the relevant aspects of language, this will turn out to be a “fight against windmills”-task.

But isn't this worth fighting for?

It is clear that the exclusive implication is an entailment; but the nature of the prejacent one is more obscure. Roberts (2006), for example, argues that the *prejacent* of “only” is more similar to a presupposition than to an entailment, or a conversational implicature, but it is arguably best defined *as a non-speaker-oriented conventional implicature*.

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