Sciences pour
la communication

The Pragmatics of Commitment

Kira Boulat

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Commitment is connected to central linguistic features, such as modality and evidentiality. It has thus been investigated in many branches of the field. Building upon this heterogeneous literature, this book offers a cognitive pragmatic account of the processes involved in utterance interpretation, crucially when the hearer assesses the level of commitment linked to it. This research illustrates that the relevance-theoretic notion of strength can be used to capture the cognitive effects of commitment markers (as *I think that X, I am sure that X*, etc.). The author's model is based on a novel typology as well as predictions which were experimentally tested. The results show that commitment to an utterance is indeed cognitively determined by the strength of the hearer's corresponding assumptions.

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General introduction

This study is about commitment. It is not about the engagement or obligation that restricts freedom of action though. Rather, this research is devoted to a less romantic and less-talked-about – yet no less interesting – phenomenon, i.e. the linguistic notion of epistemic commitment. Jean-Paul Sartre once wrote (obviously in a very different context which I willingly ignore here) that commitment was an act, not a word. In this book, I will argue that commitment is about words after all and more specifically about utterances and how they are represented in the speaker's and in the hearer's mind.

While it has not been researched directly in modern pragmatic theories, commitment is a key aspect of communication as it touches on general interpretive phenomena which are assumed to impact every single utterance. Broadly speaking (and also somewhat intuitively), commitment reflects the possibilities offered by human languages to endorse an utterance at various degrees – or to dissociate oneself from it. From this conceptual perspective, commitment overlaps with a number of semantic and pragmatic notions like truth, belief, reported speech, modality and evidentiality, among others. As a result, it has been studied quite obliquely through these different lenses.

Commitment has been discussed within linguistic domains such as Enunciation Theory, Linguistic Polyphony, Speech Act Theory, studies on dialogue and argumentation, studies on modality and evidentiality as well as Relevance Theory. Even though commitment is a recurring concept, it has seldom been investigated as a topic in its own right (Dendale and Coltier 2011: 7). Even from a terminological perspective, this pragmatic phenomenon has been variously named: "prise en charge", "endorsement", "responsibility" or, more generally, "commitment".

Although different aspects of commitment have already been discussed in modern pragmatics, questions remain as to how it should be accounted for. Indeed, no consensus has been reached yet with respect to its definition. If definitions exist, they generally combine concepts such as truth, source, enunciation, assertion and modality, to name just a few (Coltier et al. 2009: 7). Needless to say that linguists often disagree on several of its definitional points. Therefore, this research is a systematic attempt to fill some of the existing gaps by providing a unified cognitive pragmatic account of commitment phenomena.

The general picture of the notion of commitment is heterogeneous and somewhat incomplete. While it can be safely claimed that its linguistic markers have been identified and accounted for in numerous studies, the cognitive aspect of commitment has received much less attention and is, as a result, less well charted. Recent attempts have used a relevance-theoretic approach to investigate the cognitive underpinnings of commitment phenomena in connection with the calculation of implicatures (de Saussure and Oswald 2008, 2009). However, I wish to question the very cognitive nature of commitment. In this research, I will construe commitment as the output of inferences that metarepresent the relative certainty and reliability of the information conveyed by an utterance, both in the hearer's and in the speaker's cognitive environment (i.e. the set of her contextual assumptions). I will also argue that commitment determines how pieces of information are integrated in and retrieved from our cognitive environment.

More specifically, this research will adopt a hearer-oriented, relevance-theoretic perspective (Sperber and Wilson 1995) coupled with studies on epistemic vigilance (Sperber et al. 2010) to elaborate a theoretical model for commitment phenomena. In the last part of this research the predictions and validity of the proposed theoretical model will be evaluated by using a set of experimental techniques borrowed from neighbouring fields such as psycholinguistics.

Research questions and outline

The main goals of this research are both theoretical and experimental. From a theoretical perspective, this work aims to provide a global picture of commitment in linguistics as well as to argue for a unified pragmatic view of commitment phenomena. Not only does it provide a commitment typology which cuts across both a linguistic and a cognitive notion, it also presents clear definitions and testable predictions. Finally, this research explains and tests how commitment affects the way individuals store and retrieve pieces of information. From an experimental perspective, the validity of this model will be tested by assessing the effect of commitment markers (such as plain assertions, epistemic modals or evidential expressions) on how individuals integrate pieces of information in their cognitive environment.

This book is divided into three main parts: the first one is concerned with a literature review of commitment in modern linguistics where I present an overview of the most prominent proposals; the second puts forward an alternative model of commitment and the third deals with the experimental angle of this research.

Definitions and applications of the notion of commitment will be addressed in the four first chapters, from different theoretical perspectives. Commitment will be surveyed in Enunciation Theory and Linguistic Polyphony (Chapter 1), Speech-Act Theory (Chapter 2), theories of dialogue and argumentation (Chapter 3), and finally, Relevance Theory, within which the domains of modality and evidentiality are also looked at (Chapter 4). As this review will show, a proper and formal study of commitment is still lacking and crucial questions remain unanswered (Chapter 5).

In light of this conclusion, the need for an alternative account of commitment is put forward. In the second part of this research, I present a hearer-oriented pragmatic and cognitively-based approach of commitment, whose aim is to offer a unified and empirically verifiable model of the processes of commitment evaluation and information integration. Chapter 6 offers an alternative relevance-based

perspective on commitment that borrows from studies on epistemic vigilance and relies on the cognitive notion of strength as it is applied to assumptions held within the hearer's cognitive environment. Such a conception of the notion of strength converges towards more recent relevance-theoretic issues discussed in connection with epistemic vigilance, which postulates the existence of mechanisms believed to filter out misinformation from communicated contents by evaluating it both for its content and for its source of information. The model construes commitment as a graded property of assumptions which is governed by two parameters: certainty, which is about the communicated content, and reliability, which is concerned with the source of information. The main contention of this research is that commitment to an utterance is cognitively determined by the strength of the communicated assumptions. This new definition of commitment crucially hinges on the distinction of four types of processes related to commitment. This typology is based on a double opposition between, on the one hand, speaker and hearer, and, on the other hand, between linguistic marking and mental representations. With such a cognitive and pragmatic model of commitment, I will argue that it is possible to unify the analysis of many different linguistic phenomena that have traditionally been associated with commitment. These theorical claims are then elaborated into three predictions regarding linguistic markers, the hearer's appraisal of the speaker's reliability and the salience of the piece of information, i.e. its relative importance to an individual at a given time (Chapter 7).

The third part of this work is devoted to the empirical side of this research. In this final section, I present three recognition studies in which recognition memory is analysed as a function of the certainty, the reliability and the salience of a given piece of information (Chapter 9).

Finally, after the general discussion (Chapter 10), the last chapter offers a brief summary of highlights and conclusions, before presenting a few suggestions for future research.

Part I Commitment: A literature review

1 Enunciation Theory and Linguistic Polyphony

1.1 Introduction

Commitment intuitively reflects the possibilities of endorsing an utterance at various degrees or of dissociating oneself from it. What best captures this conception of commitment within the enunciative framework is the notion of "prise en charge" (henceforth "endorsement", in English).[1] A lot has been written about endorsement in Enunciation Theory even though it has rarely been theorised as a topic in its own right (Dendale and Coltier 2011: 7). As a result, there are no full-scale studies clearly devoted to this issue.[2]

Historically speaking, "endorsement" and its polyphonic counterpart "responsibility", have a specific technical meaning in the fields of Enunciation Theory and Linguistic Polyphony (see Coltier et al. 2009). Both domains also draw a distinction between different discourse entities and hence do not take for granted that the speaker is the subject who endorses or undertakes responsibility for the information

1 Commitment and "prise en charge" are often thought to be synonymous even if they are also distinguished (see De Brabanter and Dendale 2008 and Coltier, Dendale and De Brabanter 2009).

2 This research is willingly limited to the linguistic acceptation of commitment and does not cover its philosophical understanding (see for instance, Williamson 1996 and Brandom 1983, 1994). Also, it focuses on explicatures. Related fields of enquiry including politeness effects (e.g. *I think you are mistaken* vs *I think Jane is an author*) or cross-cultural considerations, among others, are postponed to future research.

she communicates.[3] Furthermore, since these frameworks refer more systematically to the notions of endorsement and responsibility, disagreements among the different perspectives gave rise to a list of criteria which has to be taken into consideration in order to provide a thorough account of the notion of commitment (see Dendale and Coltier 2011).

This first chapter begins with a brief introduction to Enunciation Theory and Linguistic Polyphony and looks at their construals of endorsement, commitment and responsibility.[4] It is beyond the purpose of this survey to review in depth all the available and complex enunciative and polyphonic studies on endorsement and responsibility. Rather, it aims to highlight a few questions that an account of commitment ought to address.

1.2 Enunciation Theory

Enunciation Theory is one of the main theoretical frameworks in French linguistics and has been inspired by authors in philosophy of language such as Austin, Grice and Searle as well as by Bakhtin's, Jakobson's, Bally's and Benveniste's work on language and its relations to its users in context. Still, Enunciation Theory is far from being a homogeneous field of linguistic enquiry (Marnette 2005: 20).

Broadly speaking, enunciation refers to the mental and physical processes involved in utterance production tied to the "I-here-and-now" components of communication. Enunciation Theory takes into account both the speaker and the hearer and views the utterance as a unique event

3 Following many researchers working within Relevance Theory, I will refer to the speaker as a female, whereas the hearer will be referred to as a male.

4 To this end, I use Marnette's (2005) English translation of key notions such as enunciation (énonciation, in French), locutor (locuteur) and enunciator (énonciateur).

which cannot be identically reproduced twice (Anscombre and Ducrot 1976: 18; Ducrot 1984: 179; Jung 1994: 14–15; Marnette 2005: 19; Riegel, Pellat, and Rioul 2004: 575). From this perspective, the utterance is construed as a metaphorical space where the speaker marks herself as well as the hearer by the means of enunciative indicators which include presuppositions, speech-acts and performatives, connectives, enunciative particles (e.g. *but*, *since*, *so*, *indeed*, *frankly*), evaluative terms such as evaluative adjectives (e.g. *little*, *a little*, *too much*), aspects, and modality, to name just a few (Jung 1994: 15; Marnette 2005: 19–20). These enunciative markers are thought to link the utterance to the context as well as to the speaker's subjectivity (Marnette 2005: 19).

1.2.1 Enunciation Theory and endorsement

Endorsement is a key concept in Enunciation Theory since it typically marks the speaker's subjectivity in the utterance. Endorsement is often associated with linguistic aspects such as speech acts (more specifically assertives), modality, evidentiality, reported speech, linguistic polyphony, argumentation, or quadrative expressions such as *according to X*, among others (Coltier et al. 2009: 4). Endorsement is variously called "attitude", "position", "presence", "assumption", "tension", "distance", "support" (in French "adhésion"), "transparency" or "opacity" (Colas-Blaise 2011: 37). It follows that definitions of endorsement are varied and often ambiguous.

Linguists have provided differing definitions of endorsement which fluctuate between concepts like truth, source, enunciation, assertion, modality, responsibility and the point of view's origin, among others (Coltier et al. 2009: 7; Dendale and Coltier 2011: 8). In spite of these differences, the definition of endorsement in terms of truth and the various references to Culioli's works are pervasive in this literature (Guentchéva 2011: 117–118; Jackiewicz 2011: 98–99).

The domain of Enunciation Theory covers a vast range of linguistic phenomena and its treatment of endorsement is, as a result, somewhat scattered. Donaire (2011: 56–58) distinguishes among at least four main

conceptions of endorsement in Enunciation Theory and Linguistic Polyphony: a truth-conditional conception (i.e. Culioli's positioning, see below); a view positing that endorsement is a speaker's attitude whereby a speaker can endorse or refuse to endorse what she communicates; a conception defining endorsement in terms of subjective commitment and finally, a linguistic polyphonic account of the notion of responsibility. The first and the last conceptions of endorsement will be addressed in turn as they include the distinction between different discursive entities. In this respect, they crucially differ from interpretations of commitment in general linguistics, as opposed to the speaker's attitude and subjective commitment views.

Broadly construed, endorsement is defined as the speaker's enunciative choices when she produces an utterance (Neveu 2004). A narrower suggestion is provided by Antoine Culioli (1999: 130), who is the first linguist in 1971 to give the French notion of "prise en charge" an explicit and technical definition. According to him, to endorse is to say what one believes to be true.[5] Thus, when the speaker utters (1a) she expresses (1b):

(1) a. Elizabeth is home.
b. [I believe that] Elizabeth is home [is true].

As a result, every assertion (be it affirmative or negative) is endorsed by the speaker. The object of utterance production is a mental state, a belief which is linked to the notion of truth. It follows that every time a speaker makes an assertion, she communicates that she believes it to be true.

Consequently, the notion of endorsement is often related to the linguistic form of assertion. To assert is a public act expressing endorsement, which implies a guarantee of truthfulness. If the speaker lies, or if she proves to be mistaken, she may expose herself to social repercussions. An assertion generally conveys the speaker's ability to claim that a proposition is true or certain, be it in the positive or negative

5 "Dire ce que l'on croit (être vrai). Toute assertion (affirmative ou négative) est une prise en charge par un énonciateur" (Culioli 1999 : 131).

form (Culioli 1971: 10, quoted by Coltier et al. 2009: 10). Laurendeau (1989) also posits that when a speaker endorses an utterance, she presents what she communicates as true. However, he acknowledges that the speaker has the possibility of "recalibrating" her certainty, by using a propositional attitude or a modal marker (1989: 116), as in (2):

(2) I think Jane is here.

Similarly, Grize (2006: 38) claims that the speaker cannot assert a proposition without letting the hearer think that what she communicates is a true state of affairs, even in the case of negation.

Nevertheless, Culioli's definition has frequently been criticized for at least one reason: it is in fact possible to communicate a proposition without being convinced that it is true (Désclés 2009). Hence, to endorse does not necessarily mean "to believe that *p* is true". Besides, not to believe what one communicates does not automatically entail a lack of endorsement. Desclés (2009: 35) draws a clear distinction between believing the truth of a proposition *p* and presenting *p* as an assertion. However, if the speaker asserts *p*, she inevitably endorses it. Yet, a speaker can also claim that she believes *p* without being committed to the truth of the object of belief. Consider example (3):

(3) I believe Mr Darcy is single but I am not really sure.

While the speaker communicates that she believes Mr Darcy is single, she conveys as well that she is not really certain that this is the case without yielding any contradiction. From this perspective, not all utterances convey maximal endorsement, only categorical assertions do.

In his subsequent works, Culioli (*Notes du séminaire de DEA* 1983/1984) also distinguishes between endorsement linked to a belief from endorsement related to an assertion. In order to assert, the speaker needs to make a public claim, there has to be a commitment (in French "un engagement") from someone who endorses a content, who warrants this claim. The speaker endorses what she communicates in a simple instance of locution (i.e. I-SAY) whereas she is committed when she makes an assertion of the type:

(4) I say that it is true that *p*.

Here, a further distinction is drawn between "endorsing *p*" and "to be committed to the truth of *p*". When a speaker produces an utterance, she endorses the propositional content expressed. However, when she makes an assertion, she is committed to the truth of its content, i.e. she undertakes responsibility for all its consequences (Celle 2009: 281). If she lies, the speaker makes an assertion knowing that what she is asserting is in contradiction with what she knows or believes to be true (Desclés 2009: 35). Therefore, endorsement is generally seen as the operation by which an abstract proposition becomes an utterance within which lies the speaker as a subject (Coltier et al. 2009: 14). From this perspective, endorsement is triggered by utterance production and, consequently, every utterance is endorsed by default. Only in a second step can the speaker decide whether she wants to commit to the truth of the propositional content conveyed by the utterance, to distance herself from it, or to attribute it to someone else.

Enunciation Theory is a rich but heterogeneous linguistic field: it accounts for endorsement in very different terms, thus making it difficult to work with. Even though endorsement is a key concept within Enunciation Theory as it marks the speaker's subjectivity in her utterance, it has rarely been theorised. Criticisms addressed to Culioli's first construal of this concept led to a distinction between "endorsement", which is tied to utterance production, and "commitment to the truth of *p*", which is related to the truth conditions of assertions.

1.3 Linguistic polyphony

The concepts of endorsement and responsibility are also widely referred to in the linguistic polyphonic domain, inspired by Bakhtine's (1934 [1978]) works. Bakhtine developed a literary conception of polyphony according to which a text displays different "voices", thereby

rejecting the concept of a unique speaking subject (Birkelund, Nølke and Therkelsen 2009: 3; Anscombre 2009: 12).[6]

1.3.1 Ducrot's (1984) linguistic polyphony

The first explicit polyphonic linguistic theory was introduced by the French linguist Oswald Ducrot in 1984. In *Le dire et le dit*, Ducrot, following Bakhtine, challenges the assumption that a text represents one voice and argues that not only a text but a single utterance is polyphonic. In this view, an utterance is construed as a layer of multiple voices, which are not all identifiable as belonging to real communicators and which express different and even contradictory points of view (Ducrot 1984: 171; Marnette 2005: 21; Pietrandrea 2008: 222).

Because the speaker is believed to be responsible for the physiological and psychological activities linked to enunciation, she is generally thought to be the one to endorse, to be committed or to be responsible for her communicative act. However, since the polyphonic approach views an utterance as a display of different voices, an interesting question arises with respect to the concepts of endorsement and responsibility. If different voices compete within one utterance, who (or what) endorses it, is committed to it or undertakes the responsibility for the communicated information? Linguistic Polyphony makes a distinction between three main linguistic entities. One is situated at the level of utterance production, another at the level of the responsibility for the utterance and the last one at the level of the various linguistic characters staged by the utterance, to borrow Anscombre's (2009: 16) theatrical metaphor.

These entities come from Bally's distinction between the two notions "modus" and "dictum". "Modus" refers to the expression of the speaker's attitude towards a propositional content, which in turn

6 The speaking subject refers to "le sujet parlant", in French.

is called "dictum" (Araújo Carreira 1997: 217). For Bally (see Ducrot 1989: 170), the semantic structure of a sentence is as follows:

(5) Modus (= modal subject + modal verb) + Dictum

The modal subject is the instance the communicated thought is attributed to, who is not always equated with the speaker. Let us consider the following examples:

(6) I think (modus) he is married (dictum).
(7) I need (modus) you to help my sister (dictum).
(8) My mother thinks (modus) that I should rewrite the letter (dictum).
(9) You believe (modus) that Jane is too weak to go home (dictum).
(10) We know (modus) that he is a human rights lawyer (dictum).

Examples (8), (9) and (10) clearly illustrate how the modal subject differs from the speaker and how it refers to another source of information instead (i.e. *My mother thinks* vs *I think*; *You believe* vs *I believe*; *We know* vs *I know*). For Ducrot (1989: 74), the dissociation between the speaker and the modal subject is also crucial.

Bally distinguished among three different "subjects": the speaking subject ("le sujet parlant", in French), the communicating subject ("le sujet communiquant") and the modal subject ("le sujet modal"). The speaking subject is basically the speaker, the person who physically produces the utterance. The communicating subject corresponds to the person who says something in the utterance. Finally, the modal subject is the instance the thought is attributed to.

Ducrot (1984: 198–199, 1989) grounds his own account of linguistic polyphony on Bally's distinctions. Bally's speaking subject remains the speaking subject in Ducrot's terms, the communicating subject becomes the locutor and the modal subject the enunciator (see Marnette 2005 for the English translation of these terms). These instances are theoretical entities: not all of them correspond to individuals in the real world. Ducrot (1984: 198–199) acknowledges that, empirically speaking, there is a unique speaker. Yet, he views the utterance as an exchange, a dialogue between different voices. Ducrot distinguishes between the locutor, who is construed as a "discursive fiction" and the speaking

subject, who is a component of experience.[7] The speaking subject refers to the physical person who produces the utterance and belongs to the real world. The locutor is the source of the utterance and is thought to be responsible for the act of enunciation. Within this framework, the locutor is thus considered to be the fictional entity able to endorse a given content. According to Anscombre (2009: 16–17), the case of the will is an indisputable instance of the distinction between speaking subject and locutor. Indeed, the locutor of the will is the deceased, the one who signed it and the one who is referred to by the personal pronoun *I*. However, the speaking subject is obviously and reassuringly not the one referred to by the pronoun *I* but the lawyer who is reading the testament. Let us have a look at another example:

(11) *Jane*: Mr Collins wants to marry me: I don't love him, I think he is disgusting.

According to Ducrot's polyphonic theory, the pronoun *I* shows that someone is endorsing the communicative act. The "being" designated by *I* is therefore the locutor, Jane. Clearly, this *I* does not refer to Mr Collins, whose point of view is nevertheless expressed in this utterance. Thus, Jane is both the locutor and the speaking subject. Yet, the enunciator, Mr Collins, represents the different point(s) of view expressed (Marnette 2005: 21; Beyssade and Marandin 2009: 89) or the origin of a point of view in a given utterance (Ducrot 1984: 199–200). An enunciator is not a real person but an abstract function, i.e. "the source of a set of *operations* which results in an utterance in a context" (Salkie, Busuttil, and Van Der Auwera 2009: 3, emphasis in the text). Consider one of Ducrot's (1984) examples:

(12) *John*: Unfortunately, it is forbidden to smoke.

---

7 "Certes, du point de vue empirique, l'énonciation est l'œuvre d'un seul sujet parlant, mais l'image qu'en donne l'énoncé est celle d'un échange, d'un dialogue, ou encore d'une hiérarchie de paroles. Il n'y a là de paradoxe que si l'on confond le locuteur – qui, pour moi, est une fiction discursive– avec le sujet parlant – qui est un élément de l'expérience. " (Ducrot: 1984 :198–199)

Let us imagine that the locutor (once more the speaking subject) is a non-smoker. The regret expressed by the adverbial *unfortunately* is not the locutor's, but it echoes the addressee's. According to Ducrot, there would be two enunciators here: the administration who claims that smoking is forbidden and the addressee, who regrets not to be allowed to smoke.

For Ducrot (1984: 198–199), enunciation is definitely a speaker's production. However, he construes the utterance as dialogical: one has to distinguish between the speaker, who is an element of experience and the locutor, who is a fictitious construct responsible for the enunciative act. The speaker is therefore not conceived of as a linguistic entity and, as a result, she does not have a real position in the polyphonic structure.

We have just seen that there are different discursive entities behind the act of enunciation. Yet, only one of these discursive entities is considered to be able to endorse what is communicated. Interestingly, it is the locutor, who is a fictitious construct and who cannot always be equated with the actual speaker producing the utterance (i.e. the speaking subject), who is believed to endorse.

Researchers working within the field of Linguistic Polyphony generally agree that the enunciative act is heterogeneous, that is, they claim that every utterance consists in a set of different voices. Nevertheless, various movements resulted from Ducrot's 1984 work. One of them, the ScaPoLine (the Scandinavian Theory of Linguistic Polyphony), offers a formal theory of Linguistic Polyphony which provides an interesting construal of responsibility (Birkelund et al. 2009: 4).

1.3.2 The ScaPoLine: Linguistic polyphony and responsibility

The ScaPoLine is based on the French enunciative linguistic model and puts forward an account of the concept of responsibility, explicitly related to the notion of endorsement (Nølke, Fløttum, and Norén 2004: 44). Responsibility is for Nølke (1994) and Nølke et al.(2004: 43) what they call an "enunciative link" between a discursive being and a point of view. This link specifies the discursive being's position towards

the point of view. Contrary to Culioli's construal of endorsement, the notion of responsibility is not defined in terms of truth and is not specifically tied to the notion of assertion. The ScaPoLine's definition of responsibility broadly refers to the enunciative source, i.e. the origin of the point of view expressed (Nølke 1994: 150). X is therefore responsible if it is the source of the point of view (Nølke 2001: 51). Yet, as highlighted by Jackiewicz (2011: 99–100), the ScaPoLine does not fully succeed in removing the notion of truth from its account. As Dendale and Coltier (2005: 137) argue, most of the existing judgments in the ScaPoLine framework are of the "true" or "false" type. They conclude that the definition of responsibility in terms of source might only be a digression to eventually come back to the notion of truth.

According to the ScaPoLine, the polyphonic structure is made of four elements: LOC (which stands for "the locutor as constructor"), the points of view, the discursive beings and the discursive links.[8] Whereas LOC is responsible for utterance production, the different points of view are construed as semantic entities bearing a source, which is said to "have the point of view" (Nølke et al. 2004: 31).[9] They basically correspond to Ducrot's enunciators. The general form of a point of view is represented as follows:

(13) [x] (JUDGE (p))

where [x] indicates the source and JUDGE corresponds to a judgment made by the source on the content *p*. The discursive beings are semantic entities as well, construed as representations of the "characters" inhabiting the discourse and which are likely to fill in the sources. Finally, discursive links relate the discursive beings to the different points of view. There are three main links: responsibility, refutation and non-responsibility (or non-refutation), (Nølke 2009: 86). From the ScaPoLine's perspective, responsibility is the most important

8 In French, LOC refers to « le locuteur en tant que constructeur ».

9 The ScaPoLine distinguishes among three images of the locutor but these distinctions go far beyond the scope of this section (for an overview, see Nølke 2009).

enunciative link which connects a discursive being to a point of view. As discussed earlier, this link specifies the discursive being's position towards this point of view. Unlike other accounts of endorsement, responsibility is not restricted to a unique instance. The seven discursive beings presented in the ScaPoLine can all be the source of an utterance (Coltier et al. 2009: 21) and can all be held responsible.

The definition of the notion of responsibility is judged problematic on various levels. Its viability mainly depends on the way the ScaPoLine defines the notions of source, judgment and contents. Yet, these terms are all inter-defined (Jackiewicz 2011: 100; Dendale and Coltier 2005).

Polyphonic approaches view every utterance as the layering of several voices expressing different points of view. Within the French and Scandinavian polyphonic perspectives, endorsement and responsibility are at the heart of complex distinctions between various entities. By rejecting the assumption that the speaking subject is unique and thus the person supposed to endorse, to be committed to or to be responsible for utterance production, these theories attribute commitment to different "fictitious" constructs (Ducrot 1984: 199), such as the locutor or the source of the point of view.

If this survey provides an overview of the different discourse entities behind enunciation, it is to highlight the complexity these studies introduce when making such distinctions. According to Moeschler and Reboul (1994: 333), these entities are considered a major difficulty and tend to obscure the issue. I will argue, in line with de Saussure (2010), that these are not needed in order to account for commitment. In his criticism of Linguistic Polyphony, de Saussure (2010) claims that the speaker's ability to represent allocentric points of view in her utterance is a typical metarepresentational capacity. In this view, what is called a "polyphonic utterance" shows both a hierarchisation of contents (which refers to the fact that one content, which can be attributed to a third party, is embedded under another content, which can be attributed to the speaker) and an allocentric representation, what polyphonic approaches construe as a layering of multiple voices (de Saussure 2010: 98, 104).[10]

10 "Un énoncé polyphonique manifeste à la fois une hiérarchie des contenus et une représentation allocentrique. La polyphonie, alors, semble pouvoir s'équivaloir

From de Saussure's metarepresentational perspective, the speaker can represent allocentric points of view in her utterance without automatically withdrawing her responsibility. The uniqueness of the speaking subject is thus rehabilitated, and the complex distinctions presented above are no longer required.

1.4 Conclusion

This brief survey highlighted that commitment only explicitly acquires a technical meaning in the enunciative and polyphonic frameworks. Even though commitment is often thought to be linked to truth and despite its frequent use in Enunciation Theory and Linguistic Polyphony, no consensus has been reached with respect to its definition.

This overview made clear that the following key questions regarding the notion of commitment should be addressed: who is committed and what is one committed to? Is commitment a graded or an absolute notion? Lastly, is it possible not to be committed or is commitment constitutive of every utterance? In the following chapters, these questions are dealt within Speech Act Theory, studies on dialogue and argumentation, as well as Relevance Theory, where the relevance-theoretic readings of modality and evidentiality will also be tackled.

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avec la *métareprésentation*, et une approche « métareprésentationnelle » semble s'ouvrir pour la polyphonie" (de Saussure 2010 : 98).

2 Speech Act Theory

2.1 Introduction

In *How to do things with words* (1962), Austin developed an alternative approach to language where it is no longer viewed as describing states of affairs only but also as acting upon the world (by requesting information, giving orders, making threats, giving warning or advice, for instance). Language is thus seen as a way to perform actions, i.e. as a way to perform speech acts (Moeschler and Reboul 1994: 53; Ifantidou 2001: 17). This led to Austin's distinction between two types of utterances: constatives and performatives. Constative utterances describe states of affairs and are truth conditional, whereas performatives are non-truth conditional (they are said to be felicitous or infelicitous instead) and are acts of doing (Lyons 1995: 238). I will come back to this distinction shortly.

For Austin, a speech act consists of three main acts:

(i) the locutionary act, which refers to the act of producing speech;
(ii) the illocutionary act, which is an act performed by saying something (for example, making a promise or a request, asking a question, etc.). And finally,
(iii) the perlocutionary act, which is defined as the consequences produced by a given speech act and which is performed by means of saying something (for instance, persuading someone to do something, getting someone to believe something, and so on), (Lyons 1977: 730; Moeschler and Reboul 1994: 62–63).

An illocutionary act is deemed successful only if it fulfils the so-called felicity conditions. When the conditions are not met for the

appropriateness of a speech act, it is said to be infelicitous. Following Searle (1979: 57–69), there are three types of conditions: the preparatory conditions, the sincerity conditions, and crucially, the essential conditions.[11]

According to Lyons (1977: 734), essential conditions entail that:

> the person performing the act is committed by the illocutionary force of his utterance to certain beliefs or intentions; and, if he thereafter produces an utterance which is inconsistent with these beliefs or conducts himself in a way that is incompatible with the intentions to which he is committed, he may be judged guilty of a breach of commitment.

Essential conditions are therefore tightly linked to the notion of commitment. In this view, the speaker is committed by the illocutionary force to mental states such as belief and intentions, which have to be taken into consideration in her subsequent conduct. By communicating in a certain way, the speaker creates expectations regarding her future behaviour.

I will begin with a brief overview of the scarce definitions of commitment in Speech Act Theory, including Katriel and Dascal's (1989) distinction between commitment and involvement. Then, I will review different types of speech acts such as commissives, assertives and directives along with various illocutionary-force indicators explicitly associated with commitment. Finally, I will address the questions raised in the previous chapter, in light of different speech-act-theoretic accounts of commitment.

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11 Preparatory conditions require that the speaker performing the act has the right or authority to produce it. They also apply to assertions: if the speaker does not have sufficient evidence for her assertion, her act is considered null and void (Vanderveken 1990: 114). According to sincerity conditions (which specify a psychological state), if the speaker produces a speech act insincerely (for instance, if she lies), she is guilty of an abuse (Lyons 1977: 733–734; Falkenberg 1990: 131, 137–138). The performance of an illocutionary act is considered sincere when the speaker has the mental state required in the performance of that act (Vanderveken 1990: 117). For example, when a speaker promises the hearer to do something, she must have the intention to make the action described in the promise.

2.2 Definitions of commitment in Speech Act Theory

Commitment is a key notion in Speech Act Theory: indeed, both Austin (1962) and Searle (1979) use this notion to refer to the responsibility for producing a speech act (Caffi 2007: 14). The illocutionary force, which corresponds to the status of the utterance as a promise or a request, for instance (Lyons 1977: 731), is generally considered as the locus of commitment (Katriel and Dascal 1989: 279).

Lyons (1995: 253–254) argues that when a speaker performs a speech act, she expresses both a proposition and an attitude towards it. This attitude is what he refers to as "epistemic commitment". Commitment is thus construed as a part of the illocutionary force. According to Lyons (1995: 255), it is made of two components: a commitment ("I say so") or non-commitment, and what he calls "a modal component of factuality", the "it is so", which is contrasted with desirability ("so be it").

The term "commitment" is defined by Katriel and Dascal (1989) as a type of promise the speaker makes when she communicates. It is manifested "by a commitment to beliefs or other psychological states expressed by the utterance as well as to other elements of the illocutionary force such as illocutionary point, or to indirectly conveyed meaning" (1989: 275–276).[12] Moreover, the speaker is thought to make another promise when she produces an utterance. This is what Katriel and Dascal call "involvement", which refers to "the speaker's mode of participation in the exchange" (1989: 276) and which is considered as degree-sensitive. Thus, involvement is to be found at the level of the interaction and is concerned with the speaker's participation in a dialogue.

12 The illocutionary point of a given force is "the point or purpose of a type of illocution" (Searle 1979: 3) or the point which is "necessarily achieved on the propositional content when there is a successful performance of any speech act with that force" (Vanderveken 1990: 146). For instance, the illocutionary force of a declaration has the assertive and expressive illocutionary points.

From this perspective, commitment is a "promise" involving psychological states or other elements of illocutionary force expressed by the utterance. Yet, Katriel and Dascal define commitment by using the very same term, which is somewhat uninformative. Commitment is further described as "what the speaker can be said to have 'taken for granted' in making his or her utterance" (Katriel and Dascal 1989: 286). This description does not provide us with a clear definition either. Consequently, Caffi's (2007: 136–137) construal of this distinction is retained here: commitment is viewed as a cognitive and dichotomous notion, whereas involvement is a dialogical, emotive and scalar concept.

2.3 Speech acts and commitment

Searle's (1979: 4–5) classification of speech acts consists of assertives (e.g. statements), commissives (e.g. promises), directives (e.g. requests or orders) as well as expressives (e.g. congratulations). These categories approximately correspond to four psychological states: belief, intention, wish or desire, and emotion.

Mental states may be expressed with different degrees of strength. For instance, in the case of a testimony, the degree of strength of the sincerity conditions is greater than that of a conjecture because the speaker who testifies expresses a stronger belief than when she makes a supposition. Similarly, promises are believed to be stronger than threats since the former kind of speech act involves a specific type of commitment, namely an obligation, which is not mandatory in the case of a threat (Searle and Vanderveken 1985: 192, in Verbrugge et al. 2005: 1). Degrees of strength can be expressed via intonation or via adverbs such as *sincerely* or *frankly*, which are thought to enhance the degree of strength of the sincerity conditions (Vanderveken 1990: 119). However, Vanderveken (1990: 120) argues that direct comparisons are only possible between illocutionary forces with the same illocutionary point. Furthermore, degrees of strength are also

applied to propositional attitudes, which are believed to carry a certain degree of speaker commitment.[13]

Speech acts commit the speaker to the performance of a future conduct (Austin 1975: 89). If commitment was at first exclusively used in connection with commissives (for instance, *to promise*, *to pledge*, *to guarantee*, *to swear*, *to threat*, and so on), its scope was later extended to assertives and directives (Austin 1975; Searle 1979; Falkenberg 1990; Brabanter and Dendale 2008: 1–2). Yet, Lyons (1977; 1995) argues that any kind of speech acts commits the speaker to certain beliefs or intentions, which are stated in the sincerity conditions of each illocutionary act (Brabanter and Dendale 2008: 2).

If the alternative account of commitment presented in Chapter 6 exclusively focuses on assertives (see below in Section 2.3.2), commissives (Section 2.3.1) and directives (Section 2.3.3) will be briefly addressed, for commitment is first and foremost linked to these two types of speech act in this framework.

2.3.1 Commissives

Austin (1975) and Searle (1979) construe the category of commissives as committing the speaker in varying degrees to the performance of a future action. Commissives are thought to involve a commitment by the speaker to "undertake the course of action represented in the propositional content" (Searle 1998: 149). Indeed, when the speaker uses a commissive, she makes her commitment fully explicit to a future conduct (Vanderveken 1990: 21–22). According to Kissine (2013: 148), commissives commit the speaker to bring about the truth of the propositional content, "at some time *t*, independently of [the speaker's] effective

13 The concept of strength mentioned here is different from the one theorised by Relevance Theory. Whereas Speech Act Theory compares the strength of two same types of speech act (e.g. a testimony is stronger than a conjecture), Relevance Theory widens the perspective and applies the concept of strength to every single assumption in an individual's cognitive environment, i.e. her set of contextual assumptions (see Section 6.4.2 for discussion).

desires at the utterance time or [the speaker's] intentions at *t*" (Kissine 2013: 158). Consider the following example:

(14) I promise I will come back for you.

In (14), the speaker promises to come back for her addressee. As a result, her addressee is entitled to expect her to do so. The speaker is thus supposed to fulfil her promise, to bring about the fact that *I will come back for you* is true in the future, even though she no longer wishes to.

Kissine (2013: 148) interestingly construes commissives as assertions about the future. According to him, a threat does not entail less commitment than making a promise, as opposed to the rather widely held view presented earlier. In fact, for him any commissive commits the speaker to the truth of what she communicates "exactly in the same way as the corresponding assertion" (Kissine 2013: 163–164). Yet, the hearer must assume to some extent that what the speaker conveyed under a commissive will be verified in the future. In other words, commissives and assertives similarly commit the speaker to the truth of the communicated content. In the former case though, the felicity of this type of speech act is to be verified in the future.

2.3.2 Assertives

Assertives "commit the speaker (in varying degrees) to something's being the case, to the truth of the expressed proposition" (Searle 1979: 12). When a speaker communicates *p*, she represents the communicated state of affairs as true (which is the essential condition of asserting) and indicates that she believes *p* (which is its sincerity condition), (Searle 1979: 64; Vanderveken 1990: 117–118; Ifantidou 2001: 19). An assertive is infelicitous if the speaker does not possess enough evidence for the truth of the proposition expressed. When the speaker utters (15), she communicates that she believes that *Jane got married to Mr Bingley* is an actual state of affairs.

(15) Jane got married to Mr Bingley.

A speaker cannot assert in (16) that it is the case and in the same utterance deny believing that it is, without being considered guilty of a breach of epistemic commitment (Lyons 1995: 254).

(16) ? Jane got married to Mr Bingley but I don't believe it.

As discussed earlier, to assert is tantamount to expressing an epistemic commitment, which refers to the speaker's attitude towards her proposition when she makes a statement (Lyons 1995: 253–254). A speaker who produces an utterance is automatically committed, even though this does not imply the speaker's belief in what she communicates. According to Lyons (1995: 254),

> anyone who states a certain proposition is committed to it, not in the sense that they must in fact know or believe it to be true, but in the sense that their subsequent statements – and anything that can be legitimately inferred from their accompanying and subsequent behaviour – must be consistent with the belief that it is true.

Here, commitment is interestingly not defined in terms of sincerity and truth but in terms of consistency: the speaker only needs to be coherent in subsequent utterances with what she asserted. In previous works, Lyons (1977) had already highlighted the distinction between belief, truth and commitment, claiming that "commitment is independent of sincerity and truth; it is a matter of appropriate behaviour" (1977: 734).

Kissine (2008) associates two types of commitment with assertive speech acts: what he calls the *J*-commitment and the *T*-commitment. The former type refers to the commitment to having demonstrative justifications for *p*, while the latter corresponds to the commitment to the truth of its propositional content (Kissine 2008: 155). Furthermore, Kissine acknowledges the existence of weaker assertive speech acts such as *asserting with reservation* and *guessing* for instance, which cannot be claimed to have any *J*-commitment. Following Toulmin (1958: 47–53), Kissine argues that performing such weak speech acts indicates that the speaker's epistemic grounds are insufficient to deductively support the propositional content she expresses.

According to Kissine's Direct Perception model, any proposition expressed by an utterance and automatically understood by the hearer goes directly in his belief system. The author (2008: 170) suggests that it is the reason why speakers are committed to the truth of any proposition they convey. Therefore, asserting *p* amounts to presenting oneself as believing *p*. In this view, "it is not the case that every flat-out assertion imposes *J*-commitment on [the speaker]. However, in asserting that *p*, [the speaker] becomes responsible for the persistent truth of *p*" (Kissine 2008: 171).

In this light, modalized utterances such as (17) and (18) express two propositions: *p* and *the truth of p is only probable* (17) and *the truth of p is not certain* (18):

(17) Elizabeth is probably single.
(18) I guess Elizabeth is single.

The Direct Perception model assumes that when the speaker utters either (17) or (18), the propositional content *Elizabeth is single* goes straight into the hearer's belief system, thereby accounting for the fact that the speaker remains committed to the truth of *Elizabeth is single*. However, the propositions *The truth of Elizabeth being single is only probable* and *The truth of Elizabeth being single is not certain* also enter the hearer's belief system. Even though this does not cancel the *T*-commitment which goes with *p*, it makes it impossible for the hearer to believe that *p* is true "no matter how the world turns out to be" (Kissine 2008: 172). As Kissine puts it, the speaker "remains committed to *p* being true with respect to what she takes to be true at the utterance time only" (2008: 172). For him, the content of such weak assertive speech acts is construed as "non-monotonically true" since it is possible to revise the content later in view of new information.[14]

Since performing an assertive entails undertaking responsibility for the truth of *p*, then performing it implies being blamed if one discovers

14 "Non-monotonically" implies "alternative possibilities of how the world could be" and "is needed to decide whether a proposition can be true in a possible world" (Kissine 2008: 168).

its falsity. Because asserting causes the speaker's addressee to believe that *p*, the speaker is committed to knowing or to being able to justify the communicated propositional content (Kissine 2013: 92–93).

2.3.3 Directives

Finally, in the case of directives (for instance, *to request*, *to command*, *to permit*, and so on) the speaker does not commit to the truth of the proposition expressed but to the necessity of some course of action. Directives are construed as the speaker's attempts, in varying degrees as well, to get the hearer to do something (Searle 1979: 13–14).[15] Directives express the speaker's desire that "something be so" (Lyons 1995: 254).

A request is seen as a speaker's attempt to get her addressee to do something, without necessarily compelling him to do it (Searle 1979: 14). It is thought to be infelicitous if the speaker does not believe her addressee is able to perform the requested action (Jary 2010: 8–9). In (19), the speaker tries to get the hearer to open the window but does not force him to do so.

(19) Can you open the window?

When a speaker asks a question, she is thought to express both a proposition and an attitude of non-commitment with respect to its truth-value. Yet, she also indicates that she desires her addressee to assign a truth-value to the proposition she conveys (Lyons 1995: 254). For conclusive questions such as (20), Lyons (1995: 255) argues that the speaker expresses her commitment to the "it-is-so" or "so-be-it" component of the utterance and invites the addressee to do the same.

(20) The dog is inside, isn't it?

In (20), the speaker expresses her provisional commitment to the truth of the proposition *The dog is inside*, while giving her addressee the

15 Consider, for example, the distinction between *I invite you to* and *I order you to*.

opportunity to reject it. In this view, the addressee can correct or reject a commitment.[16]

In the case of an order, as in (21), the speaker does not express the belief that the window is open but that she wants it to be open:

(21) Open the window!

When the addressee hears (21), he should therefore feel obliged to open it. Whereas with commissives the speaker is committed to carry out what has been said, in the case of directives, the hearer is somehow obliged to do what has been asked (Falkenberg 1990: 138). Directives such as commands and requests involve a different kind of speaker commitment. They entail a deontic commitment, which is related to the imposition of obligations (Lyons 1995: 254–255). The speaker is not committed to the truth or the factuality of a proposition, but to the necessity of a course of action.

2.4 Illocutionary-force indicators and commitment

When it comes to assertives, commitment has been conceived of as closely related to the truth of the proposition expressed and as lexicalised by means of specific linguistic cues. If performative verbs explicitly name the act to be performed, parenthetical constructions such as *I suppose*, *I believe*, *I hear*, and so on, do not. However, they are considered to be part of the category of illocutionary force markers as well (Ifantidou 2001: 121). Illocutionary force markers are defined as "the words and other syntactic features of that sentence whose meaning determines that its literal utterance in a possible context of use has one [. . .] possible

16 Note that this is the first mention of a type of hearer-oriented commitment. In the following, the distinction between speaker-oriented and hearer-oriented types of commitment will become clearer but as we will see, this distinction is rarely drawn in the existing accounts of commitment.

illocutionary force" (Vanderveken 1990: 14). These include the mood of the verb, word order, intonation as well as punctuation. Austin (1979 [1946]: 109, quoted by Ifantidou 2001: 122) construes such linguistic expressions as indicators of how the utterance is to be understood. He argues that their function is to provide information regarding the illocutionary force of utterances. Vanderveken (1990: 17) notes that these include "an increase or decrease in the degree of strength of illocutionary points", which are, as we recall, defined by Searle (1979: 3) as "the point or purpose of a type of illocution". Indeed, the pragmatic effect of such markers is to weaken or strengthen the utterance (Ifantidou 2001: 155). Thus, with respect to assertives at least, the speaker has several linguistic means to indicate or to specify the extent to which she commits herself to the truth of the proposition she expresses.

In Speech Act Theory, evidential expressions are also seen as specifying the degree of strength of the speaker's commitment (Palmer 1986: 64; Ifantidou 2001: 30). For instance, evidential adverbials (e.g. *evidently*, *obviously, clearly*) indicate the source or the strength of the evidence the speaker has, or in other words, the reliability of her statement (Ifantidou 2001: 98, 101). Hearsay adverbials such as *apparently, allegedly* or *reportedly* are treated in the same vein. For speech-act theorists however, the former examples strengthen speaker commitment, whereas the latter weaken it (Ifantidou 2001: 102).

According to Caffi's study on mitigation (2007), a speaker commits herself to a proposition, "or a socially recognizable role indexed by an illocutionary force-indicating device (e.g. someone who is asking, ordering, giving a piece of advice, congratulating, etc.)" (Caffi 2007: 44), but also to the image she projects through her discourse. Caffi construes this responsibility as scalar: when mitigating her speech, the speaker may reduce her responsibility towards both her utterance and her addressee. Caffi (2007: 3, 55) indicates that attenuating devices such as hedges (which are mitigators centred on the illocutionary force) weaken the speaker's subscription to the illocutionary force of the utterance.[17]

17 Hedges are construed as discourse strategies whose aim is to reduce the force or the truth of an utterance, thereby limiting the speaker's responsibility when she

Bushes (i.e. devices introducing vagueness in the proposition) lessen the speaker's commitment to the truth of the proposition expressed. Finally, shields, which correspond to operators centred on the deictic origin of the utterance and which veil the source of the speech act, attribute the belief conveyed to someone else than the speaker. These devices are seen as mechanisms used by the speaker to avoid accountability (2007: 65, 89, 96). What Caffi calls "tempering mitigation" has mainly two effects: either it calls into question the validity of the propositional content of the speech act or it weakens the speaker's epistemic commitment to the propositional content (2007: 222).

2.5 Conclusion

Commitment is a key notion in the speech-act-theoretic domain as it generally refers to the responsibility involved in producing a speech act. Commitment is traditionally situated at the illocutionary force level and can be lexicalised by means of illocutionary-force markers. Even though it has been widely used in relation to different speech acts such as assertives, commissives and directives as well as with different illocutionary-force indicators, it has seldom been defined. Except for Katriel and Dascal's (1989) attempt, it seems that most authors take the meaning of commitment for granted.

In Speech Act Theory, just as in the domains of Enunciation and Linguistic Polyphony, commitment is linked to both concepts of truth and belief, even though it distances itself from them. In the case of assertives, the speaker must behave as if she believed her propositional content to be true and must act accordingly in the subsequent

utters an assertion or produces another speech act. Brown and Levinson (1978) suggested that they act on illocutionary force and speaker commitment in general (Kaltenböck, Mihatsch, and Schneider 2010: 1, 4).

communicational exchange. In other words, the speaker needs her future behaviour to be consistent with her previous utterances.

In light of what has just been described, I can address the four questions raised in the first chapter: who is committed and what is one committed to? Is commitment a dichotomous or a graded notion? If it is the former case, is there a possibility of non-commitment within the speech-act-theoretic framework?

In the approaches surveyed above, the speaker is mainly the only person who is considered to be committed. However, whereas she is committed to carry out what has been said with commissives; with directives, the hearer is also committed to do what has been requested (Falkenberg 1990: 138). It seems then that commitment can be transferred from speaker to hearer, in specific contexts.

Now, what is the speaker committed to? Brabanter and Dendale (2008: 9) argue that there are two main ways to see commitment in Speech Act Theory. On the one hand, the notion of commitment is considered from a contractual perspective (which is thought of as a consequence of performing a speech act). According to this contractual view, the speaker is committed by the speech act she performs to future actions or subsequent behaviours. This entails that if the speaker does not act accordingly, she is considered guilty of a breach of commitment. On the other hand, commitment is considered from a psychological perspective, whereby the speaker is consciously committing to something. Thus, Speech Act Theory widens the scope of commitment: a speaker is committed by a speech act to perform a future action, but she is committed to different aspects of her utterance as well.

While in 2008 Kissine distinguished between *J*-commitment (i.e. having demonstrative justifications for *p*) and *T*-commitment (i.e. commitment to the truth of *p*), in 2013 however, the speaker is said to be committed to the performance of a speech act, a type of commitment which is considered to be maximal, when it comes to direct constatives. The speaker is also committed to the truth of the propositional content she expresses, and this commitment is degree-sensitive. Kissine illustrates this assumption with the examples reproduced below in (22) and (23):

(22) John was there.
(23) It is probable that John was there.

As discussed earlier, according to Kissine (2013: 94, 95), (23) expresses two propositions: *p* and *the truth of p is probable*. The speaker is therefore thought to be committed to the truth of both (22) and (23). Yet, for Katriel and Dascal (1989: 275–276), the speaker can either be committed to the illocutionary point or to psychological states conveyed by propositional attitudes, such as beliefs or intentions (Lyons 1995; Moraes 2011: 26). For Caffi (2007: 44), the speaker is committed to her proposition, but also to her social role (e.g. of her asking, ordering, and so on) and to the image she projects through her discourse. The speaker has a responsibility towards her addressee. Morency, Oswald and de Saussure (2008: 201) conclude that the account of commitment offered by Speech Act Theory "focuses mainly on speaker behaviour in terms of the consequences involved in the performance of a speech act".

One may wonder whether a speaker can avoid undertaking commitment in the speech-act-theoretic framework. If the speaker is committed by the speech act she produces, this seems unlikely. The speaker is also believed to be committed to a given aspect of her utterance. So, anytime she communicates, she is committed by default (Lyons 1995: 254). Yet, Searle (1979: 12–13) argues that "the degree of belief and commitment may approach or even reach zero". Similarly, Kissine (2013: 92) allows commitment cancelation: for instance, when the speaker indicates that she does not firmly believe that *p*. The speaker who produces a constative speech act can therefore cancel the commitment that the propositional content is known to her. However, cancelling its commitment to truth is more difficult since "direct constative speech acts commit [the speaker] to the belief that their propositional contents are true" (Kissine 2013: 95–96). Even though non-commitment is not a rule, it seems possible in certain cases.

Finally, let us consider whether Speech Act Theory construes commitment as a graded notion. Austin (1962) and Searle (1979) view a number of speech acts as committing the speaker to "varying degrees" (also see Moraes 2011 as well as Moeschler and Reboul 1994). As mentioned earlier, Searle acknowledges that speech acts may share the

same illocutionary point but that they have different strengths and can come close to zero (Searle 1979: 5; 12–13). When the speaker guesses or speculates that *p*, she does not convey that she is committed to knowing that *p*. If she claims, affirms or asserts that *p*, she communicates that she is strongly committed to the truth of *p* (Kissine 2013: 82). Similarly, evidentials are construed as expressing the degree of strength of the sincerity conditions of assertions (Ifantidou 2001: 20). Yet, Katriel and Dascal (1989) make a distinction between commitment, which refers to a cognitive and dichotomous component of conversation, and involvement, which is its emotional, interactional and scalar counterpart. Although Caffi (2007: 44) grounds her work on Katriel and Dascal's distinction, she views the notion of commitment as scalar since the speaker has the possibility to mitigate her discourse, thereby reducing her responsibility either towards the communicated content or towards her addressee (Caffi 2007: 118). Consequently, linguists generally agree that what they label "commitment" is a gradable phenomenon, which can vary according to the illocutionary-force marker the speaker uses in her utterance.

Commitment is not only referred to in Enunciation Theory, in Linguistic Polyphony and in Speech Act Theory. It also plays a key role in several formal theories of dialogue and argumentation, where it is considered as "the basic idea behind all dialogue as a form of reasoned argumentation" (Walton 1992: 20). This is the topic of the following chapter.

3 Studies on dialogue and argumentation

3.1 Introduction

The notion of commitment is a main part of an argumentative exchange in studies devoted to dialogue and argumentation. Broadly speaking, dialogue is defined as "a verbal, social, and rational activity aimed at convincing a reasonable critic of the acceptability of a standpoint by putting forward a constellation of propositions justifying or refuting the proposition expressed in the standpoint" (Van Eemeren and Grootendorst 2004: 1, quoted by Becker 2012: 258). It refers to "a two-way [or more] interactive communication by a series of back-and-forth messages that are steps towards fulfilling a goal" (Walton 1996: 180). According to Walton (1989: 177, 1996: 182–183), dialogue is made of five components. First of all, in order to be considered a dialogue, it needs at least two participants. Then, each participant takes a turn in making a move (that is, her sequence of moves).[18] Also, each participant possesses a set of propositions, i.e. her commitments. Construed as such, commitments can be inserted or deleted from this set of propositions. The fourth component of dialogue consists of the rules which define what is allowed as a move. Finally, the dialogue has a goal, be it to prove, to convince, to explain, and so on. To sum up, the dialogue is based on the participants' commitment store (see below in Section 3.2.1), its goal is its final point while the participants' moves are seen as bridging the gap between the former and the latter.

18 A discourse move corresponds to "an agent-initiated transition from one discourse state to another, typically, affected by an utterance" (Gunlogson 2008: 128).

The aim of this chapter is to provide an overview of different but related accounts of commitment in theories of dialogue and argumentation. After sketching Hamblin's (1970, 1971) conception of dialogue and argumentation as well as his construal of commitment, I will turn to Walton's (1992, 1993, 1996, 1997, 2000, 2008a/b) and to Beyssade and Marandin's (2009) view on commitment. The former approach is more detailed than Hamblin's, while the latter covers a wider scope. I will then present Gunlogson's (2008) as well as Malamud and Stephenson's (2015) discussion of questions and commitment before moving on to Becker's (2012) account of commitment to practical relevance and to implicit premises. I will finally address the questions raised in the former chapters, within this framework.

3.2 Approaches and definitions of commitment

Commitment is generally construed as a purely public and dialogical phenomenon in studies on formal modelling of dialogue and argumentation. Hamblin (1970, 1971) is the first to focus on commitment in this domain. He introduced the notion of commitment to account for one type of reasoning based on acceptance, that is whether and when an addressee judges he can reasonably defend or sustain a conclusion, knowing he can reasonably defend or sustain a certain premise (Beyssade and Marandin 2009: 91).

3.2.1 Hamblin

Hamblin (1970) conceives of argumentation as a dialectic game in which two participants successively present arguments. He defines commitments as "statement-tokens", as propositions accepted by the participants as the exchange unfolds (1970: 263). When a participant produces an assertion, she is automatically committed by and to it.

She presents herself as being ready to defend her utterance, that is as being ready to justify it if necessary. According to Hamblin, each participant possesses a commitment store (defined as a commitment list, namely, a definite set of propositions, cf. Walton 2008a: 13) which can be attributed to the participant and which imposes constraints on future conversational maneuvers. The commitment store can be conceived of as a slate where commitments that have been accepted during the communicative exchange are indexed. Walton (1996: 183) compares it to a database providing "a collection of premises, a pool of data for information retrieval". Each move (for instance, to ask a question, to make an observation or to produce an assertion) adds a new proposition to the slate. The commitment store represents the participants' acceptance of these propositions in the dialogue but not their belief that they are true. In this view, commitments participants make during the conversational exchange are traceable (Beyssade and Marandin 2009: 92). According to Oswald (2016), the notion of commitment helps participants to keep track of the other participants' arguments. The visibility of commitments is what allows them to proceed with the argumentative exchange. The notion of commitment is central to the reconstruction of arguments. Commitments do not necessarily arise through moves in the dialogue though, they can be assumptions already present in a participant's commitment store, prior to the argumentative exchange (Walton 1996: 183).

Commitments are dynamic since they can be inserted or deleted from the participants' commitment store: they are therefore retractable. According to Walton (1996: 184), the commitment store (what he calls "the commitment set") changes throughout the dialogue, thereby reflecting the participants' shifts of position. In this framework, the notion of commitment has a theoretical use as speakers can identify each other's commitments and assess the acceptability of given arguments. Consequently, participants need to produce utterances coherent with their previous commitments. Indeed, a communicator has to avoid making contradictory statements (Brabanter and Dendale 2008: 7), even though the commitment store is not required to be internally consistent (Hamblin 1970: 263). If one participant finds evidence

of an inconsistency in another participant's argumentation, she has good grounds for challenging its tenability (Walton 1996: 201).

In theories of dialogue and argumentation, the notion of commitment is not psychological but public and is *de facto* observable.[19] It does not necessarily correspond to the participants' actual beliefs, it operates "approximatively as if it did" (Hamblin 1970: 257). Just as Lyons (1977; 1995) and Kissine (2013) in Speech Act Theory, Hamblin distinguishes among commitment, belief and truth. Even though both commitment and belief act on propositional contents and are thought to be propositional attitudes, only the notion of commitment has a dialogical dimension. As Hamblin puts it:

> A commitment is not necessarily a belief of the participant who has it. We do not believe everything we say; but our saying it commits us whether we believe it or not. The purpose of postulating a commitment-store is not psychological (1970: 264).

Consequently, when the speaker produces an utterance, there is commitment independently of the speaker's beliefs. In line with Hamblin, Walton (2008b: 170) argues that:

> Commitment, unlike belief, is not private or impossible to access directly. A participant in a dialogue is committed to a proposition (statement) when she has gone on record in some public way as supporting it, or saying it is true or acceptable for her. Thus it is possible that she might be committed to a proposition she does not actually believe.

Because belief is a private, psychological mental state, it is inscrutable. It is impossible to prove that a speaker does not believe her utterance to be true. Yet, commitments are necessarily public acts because they are rooted in utterance production.

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19 If commitment is not meant to be *stricto sensu* psychological, studies on dialogue and argumentation cannot totally avoid the psychological dimension of commitment as they postulate the existence of a commitment store (prior to dialogue) where the participant can store what is called private commitments (see Walton's distinction between explicit and implicit commitments below, in Section 3.2.2).

We depart then from Culioli's (1999) construal of commitment, which was defined as believing what one communicates to be true. The speaker here is not committed to the actual truth of the expressed proposition (relative to her beliefs) but to the fact that she publicly presented the proposition as true. When a speaker produces an argument, she can no longer say whatever she wants: she explicitly marks, through her utterance, that she commits to a certain coherence and that it is no longer possible to retract this utterance without being incoherent or "inadequate" (Berrendoner 1981: 236).[20] Once an argument has been made, the speaker is bound to be coherent in her subsequent verbal behaviour.

3.2.2 Walton

Walton (1992, 1993, 1996, 1997, 2000, 2008a/b) builds his theory of dialogue and argumentation on Hamblin's work. It is beyond the scope of this survey to provide a detailed account of Walton's research. Rather, this overview is concerned with Walton's appraisal of the notion of commitment, which is a refined version of Hamblin's first proposal.

Walton explicitly distinguishes among different types of commitment. He acknowledges the existence of fundamental commitments, which refer to personal stances or judgments (Walton 1992: 257). However, he chooses to focus on publicly communicated commitments, which are possible to access directly. As quoted earlier, a participant is committed to a statement "when she has gone on record in some public way as supporting it, or saying it is true or acceptable for her" (Walton 2008b: 170), thereby allowing the possibility that she does not believe what she communicates. According to Walton, commitment is a weaker notion than belief since the latter entails the former but the

20 "Après avoir avancé un argument, on ne peut plus dire tout ce que l'on veut. On a accompli une énonciation marquant explicitement que l'on s'engage dans une certaine classe de cohérence, et il n'est plus possible d'en sortir, sous peine d'inconvenance. Les énonciations ultérieures, pour être convenantes, devront nécessairement appartenir à la même isotopie" (Berrendonner 1981 : 236).

reverse is not necessarily the case. Hamblin did not define commitment as a mental state but as a set of propositions participants keep track of in a dialectic game. Therefore, participants' previous moves in a dialogic sequence determine participants' commitment. Indeed, if a participant accepts a proposition, she is publicly considered to be committed to it (Walton 1996: 155).

Walton puts forward further distinctions between substantive and concessive, explicit and implicit as well as dark and light side commitments. A substantive commitment has "a burden of proof attached to it" (1996: 229), that is, the participant must defend or retract a proposition if it comes to be challenged by the other party. Substantive commitment is therefore the type of commitment related to assertions. Such obligation can be avoided in the case of concession: there is no need to defend it if challenged, since it is construed as an assumption agreed to "for the sake of argument". Indeed, concessions are temporary and do not necessarily represent the participant's position (Walton 1996: 228–229). The notions of dark side and light side commitments are closely related to explicit and implicit commitments. In a Hamblin-type of dialogue, participants' commitment store can be divided into a light and a dark side. The light side refers to overtly expressed commitments (i.e. explicit commitments), a set of propositions known to all the participants, whereas the dark side corresponds to commitments that are not known to the other participants (i.e. implicit commitments), (Walton 1992: 220). Implicit commitments are defined as "propositions that [the participant] is committed to, but has not explicitly agreed to, or otherwise given a clear indication in the dialogue of his commitment to them" (Walton 1996: 229). Implicit commitments can still be inferred by the others (Becker 2012: 65).

As mentioned above, propositions can be added to or retracted from the participants' commitment store as the dialogue unfolds. For instance, participants may have to delete a commitment if they realise that it is inconsistent with their previous commitments. Yet, because assertions are considered to carry a burden of proof, if they come to be challenged, participants must give evidence to support the assertion or give it up, by retracting it. Contrary to Hamblin's view, Walton considers

that a participants' commitment store does not have to be visible to everyone at all times (Walton 1992: 56; 152; 2008a: 13).

3.2.3 Beyssade and Marandin

In the same vein, Beyssade and Marandin (2009: 91) define commitment as a relationship between the speaker and what is publicly communicated, not between a speaker and a believed or true content. They argue that commitment establishes a relation between an agent A and a content Φ. One can say that A commits to Φ when she publicly undertakes a position committing her towards Φ.[21] Commitment is therefore defined as the expression (sincere or not) of a mental state (Beyssade and Marandin 2009: 94–95).

Beyssade and Marandin (2009) widen Hamblin's proposal, which only focussed on assertives. In line with Ginzburg and Sag (2000), they distinguish among three types of semantic contents: propositions, which are true or false; questions which can be resolved or unresolved; and finally, outcomes (in French "visées") which are realisable or unrealisable.[22]

From this perspective, a speaker is committed to a proposition *p* when she publicly communicates that she is ready to defend this proposition, i.e. that she is ready to maintain that it is true. For instance, when the speaker utters (24), she is committed to its propositional content and is ready to publicly claim that Jane Austen is the author of *Pride and Prejudice*.

(24) Jane Austen wrote *Pride and Prejudice*.

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21 "Le *commitment* établit [. . .] une relation entre un agent A et un contenu Φ et on dit que A "se commet à Φ", quand il prend une posture publique qui l'engage vis-à-vis de Φ" (Beyssade and Marandin 2009: 94–95).

22 I use here Beyssade and Marandin's translation of the French term "visées" in their 2006 article "From Complex to Simple Speech Acts: a Bidimensional Analysis of Illocutionary Forces".

The speaker is committed to a question *q* when she publicly communicates that she is interested in its answer, thereby indicating that the answer is relevant to the dialectic game. If the speaker asks the following question:

(25) Who wrote *Pride and Prejudice*?

She is thought to be committed to her interrogation and publicly presents her interest in the answer. Furthermore, the authors extend the notion of commitment to the hearer: when the speaker produces a question, she asks the hearer to be committed to her own interrogation as well since both will try to answer it.

The speaker is committed to an outcome *o* when she publicly communicates that she is interested in the realisation of an action or of a state of affairs which is not currently realised (Beyssade and Marandin 2009: 96). Consider example (26):

(26) Go and see Mr Bingley!

In (26), the speaker orders her addressee to go and see their new neighbour, thus publicly communicating that she wants him to realise this action which is not currently realised.

I will briefly survey Gunlogson's (2008) work on questions as well as Malamud and Stephenson's (2015) account of the relationship between questions and commitment, before moving on to Becker's (2012) proposal about argumentation, commitment and implicit premises.

3.2.4 Gunlogson

Gunlogson (2008) as well as Malamud and Stephenson (2015) explicitly address the notion of commitment in relation to questions. Whereas Gunlogson (2003) defined questions as a lack of speaker commitment and suggested that a rising intonation assigned the commitment to the addressee, Gunlogson (2008: 101, 133) puts forward the idea that declaratives express speaker commitment, even in a questioning use.

Following Hamblin's (1971) idea of a commitment store, she postulates the existence of a discourse commitment slate, which is defined as "a set of propositions representing the positions taken by an agent [. . .] in the discourse" (Gunlogson 2008: 107). When a speaker adds a new commitment to her commitment slate, this act eliminates worlds from the commitment set in which the new proposition is not true. Because the commitment set changes as the dialogue unfolds, it represents the speaker's state at time *t* in the conversation. Gunlogson (2008: 108) claims that the speaker's commitment to a proposition *p* is:

> represented as an operation restricting an individual ['s commitment set] so that it contains only "φ-worlds", i.e. worlds in which φ holds. Put another way, the operation will eliminate from the targeted [commitment set] all the worlds in which φ does *not* hold.

According to Gunlogson (2008), speaker's commitments are of two types: private and public. Private commitments refer to epistemic and doxastic commitments (i.e. commitments related to knowledge and belief, respectively), which are not accessible to other participants in the dialogue and consequently not part of the context. Their public counterparts are commitments which are available to both the speaker and her addressee. Commitment is defined here in terms of "anything an agent publicly treats as true for the purposes of the discourse" (2008: 110). A speaker is not only committed to the content of a discourse commitment, she is also believed to be implicitly committed to entailments, presuppositions and "not-cancelled implicatures" resulting from her explicit commitments (2008: 109–110).

Even though the speaker is allowed to revise and retract her commitments, for instance in light of new information, consistency is required when the speaker makes a discourse commitment to φ. As Gunlogson (2008: 109) puts it, "making a discourse commitment to φ sets up a future for the discourse where taking a position inconsistent with φ is not to be expected". Once the speaker makes a discourse commitment, it is fixed and persistent. Gunlogson argues that subsequent commitments do not affect the status of this former commitment, except in the case of revision. In line with Austin (1975), Searle (1979) and

Lyons (1977, 1995) in Speech Act Theory, and Berrendoner (1981) as well as Hamblin (1970, 1971) in theories of dialogue and argumentation, Gunlogson construes commitment as attached to a criterion of consistency, variously called "coherence" or "appropriate behaviour".

Gunlogson (2008) draws a further distinction between independent and dependent commitments. Independent commitments refer to commitments having a "source", which is defined as "a discourse agent who plausibly has independent evidence supporting the content committed to" (2008: 101). In other words, when the speaker is a source for her commitment, she has independent reasons to believe *p*. Hence, her belief in *p* is not dependent on what her addressee or someone said about *p* in the conversation (Malamud and Stephenson 2015: 16). Yet, while being a source for *p* requires being committed to *p*, the reverse is not true: a participant can be committed to *p* without being its source (Gunlogson 2008: 113). In this case, her commitment is seen as dependent. It follows that a participant will generally possess more discourse commitments than source commitments, since, as discussed above, she can be committed to a proposition even if she is not its source (2008: 114). Gunlogson (2008: 116) postulates the existence of a "Source Maxim", which states "Do not commit to that which lacks a source". A participant's commitment to *p* is always assumed to have a source who has independent evidence for its accuracy. To have a commitment without a source is construed as violating the Quality maxim, which posits, among other things, that a speaker must not convey information for which she does not have enough or adequate evidence (Grice 1967/1989: 27).[23]

In this view, if the declarative expressed with a rising intonation is to be interpreted as a question, the speaker is seen as presenting her commitment to be ratified by her addressee (Gunlogson 2008: 126–127). Commitment is thus proposed for approval rather than imposed on the addressee. According to Gunlogson (2008: 128), a rising intonation indicates that the utterance depends on the addressee's subsequent

23 The Gricean Maxims are listed below, in Section 4.2, see notes 24 and 25.

endorsement of the proposition expressed. However, declaratives without rising intonation do not mark an utterance as contingent in that sense.

3.2.5 Malamud and Stephenson

In their discussion about reverse-polarity question tags, same-polarity question tags and rising intonation, Malamud and Stephenson (2015) put forward a proposal, based on Gunlogson's (2003; 2008) work, where commitments are also crucial elements. According to the two authors, these three types of linguistic phenomena express the speaker's uncertainty and her wish that her addressee confirms what she communicates (2015: 2).

When the speaker uses a reverse-polarity tag as in (27) she is not committed to *p* but indicates that she is willing to share responsibility for the propositional content expressed, if it is confirmed (2015: 8):

(27) Elizabeth is twenty-four years old, isn't she?

Malamud and Stephenson (2015: 8) distinguish between projected commitments and current commitments. The former type of commitment is tentative and therefore does not commit either the speaker or her addressee, whereas the latter is viewed to be "strong" and commits the speaker and/or her addressee (2015: 1, 7, 13). When the speaker asserts a content with a same-polarity tag as in (28), it does not commit her to *p* but indicates that she is making a guess with respect to her addressee's beliefs:

(28) Elizabeth is twenty-four years old, is she?

If the addressee accepts her move, then *p* is added to his commitments. In other words, the speaker attributes the expressed commitment to someone else (Malamud and Stephenson 2015: 10–11). However, if the speaker utters *p* with a non-interrogative rising intonation like in (29), she raises a metalinguistic issue regarding *p*:

(29) Elizabeth is twenty-four years old?

P is thus momentarily added to the speaker's projected commitment set. If the addressee accepts her move and resolves the metalinguistic issue raised by the speaker, then *p* is added to the speaker's current commitment set (Malamud and Stephenson 2015: 12).

Malamud and Stephenson acknowledge that there are cases of non-interrogative rise where the speaker remains committed to *p* while the hearer is not. Their example is reproduced in what follows: let us imagine that Jane has not met Elizabeth's new neighbour and asks her "What do you think of our new neighbor?". At that point, Elizabeth is not certain whether Jane enquires about his neighbourliness or his attractiveness. She replies:

(30) He's attractive?

In this example, Elizabeth is committed to the proposition she expresses but Jane is not, since she may have only enquired about their neighbour's sociability. However, cases exist where a rising intonation indicates the speaker's uncertainty and the fact that she does not expect her addressee to be committed to *p* either (2015: 18). Consider Malamud and Stephenson's (2015) example in (31) and imagine a context in which Jane and Elizabeth are buying paint and are sorting cans into two categories: "red" and "orange". Elizabeth points to an orangish-red paint and asks Jane "What color would you say this is?". Jane replies:

(31) It's red?

By replying (31), Jane conveys that she is uncertain about the color she is assessing. Malamud and Stephenson (2015) conclude that a declarative with a rising intonation does not always commit the hearer even if the speaker remains committed.

We have just seen that a question is usually thought to convey non-commitment. However, both Gunlogson (2008) and Malamud and Stephenson (2015) put forward the idea that certain types of questions touch on the speaker's and the hearer's commitment. Some questions

may cause the speaker and the hearer to share responsibility. Even though the present research is mainly focused on declaratives (without a rising intonation), these two approaches are worth mentioning because they explicitly address the concept of commitment, which is applied to both the speaker and the hearer.

3.2.6 Becker

I will conclude this overview by surveying Becker's (2012) proposal regarding commitment to practical relevance and to implicit premises. Becker views argumentation as a way to integrate a thesis in the addressee's "frame of beliefs", which refers to "a system of propositions organised by relations of support that can but need not be (semantic) entailments" (2012: 258). Becker does not construe argumentation as proving the truth of a given thesis. Rather, everyday argumentation establishes the acceptability of its conclusion, defined as "the acceptance of a proposition as a provisional point of orientation for the future activities of the participants" (Becker 2012: 259). Therefore, Becker's account seeks to distance itself from notions of truth and belief.

According to Becker (2012), participants' beliefs are irrelevant to commitment in the argumentative discourse framework. Once an argument is asserted, the participant who uttered it is automatically committed to it, in line with the other studies mentioned in this section. As Becker (2012: 263) puts it:

> Commitment is a type of obligation that restricts the behaviour of the person so obligated. A person cannot be committed to a belief; one cannot even control one's beliefs and make a deliberate decision what to believe; and if so, one could not be checked for one's beliefs.

The expression "to be committed to a belief or a proposition" is construed in this case as "to be obliged to behave according to that belief, not to contradict that belief, for example, by denying it or by asserting its contradiction or by behaving in any other way that contradicts that belief" (Becker 2012: 263). In other words, just as Lyons (1995)

argued in Speech Act Theory, participants need to be consistent with their previous arguments, even though Becker's view seems to be more behavioural. Also in line with Gunlogson (2008), Becker suggests that participants are committed to consistency, which is a crucial aspect of argumentative dialogues. A dialogue can only move forward if the participants collaboratively accept commitments. In order to reach the goal of the argumentative dialogue (for instance, to resolve a conflict of opinion) participants need to be able to work with their addressees' previous commitments (Becker 2012: 265–266).

Becker suggests to replace the notion of truth by the one of "practical relevance", which refers to action and cooperativeness rather than to beliefs and intentions (Becker 2012: 266–267). So, commitment incurred by an assertion is commitment to practical relevance (Becker 2012: 268). This idea comes from Kopperschmidt (1989: 16) whom Becker (2012: 267) translates as follows: "by the claim to the truth of his utterance the speaker guarantees for the reliability of the communicated information so that the information can be practically relevant to the actions of other subjects".

In his research, Becker examines the status of implicit premises in argumentation. According to Van Eemeren and Grootendorst (1984: 145, quoted by Becker 2012: 262), participants are believed to be committed to their implicit premises, construed as conversational implicatures. Yet, this type of implicature is said to be "defeasible" (Grice 1975: 314). As mentioned earlier, Becker (2012: 262) suggests resolving the contradiction by expanding "commitment to truth" to "commitment to practical relevance". He argues that if the speaker uses asserted explicit premises which are meant to be construed as arguments, then implicit premises are commitments induced by those asserted explicit premises.

In a cooperative framework, the hearer is able to infer the truth of the speaker's implicit premises since she is not expected to deliberately give inadequate arguments or poor pieces of advice. In turn, the speaker is committed to "the practical relevance of [her] assertion that would be taken as an argument for some piece of advice in that context" (Becker 2012: 269). For instance, imagine that Elizabeth's father intends to fight a duel even though he had a heart-attack the previous year. To

convince his wife and daughters, he provides the *ad verecundiam* argument in (32):

(32) Dr. Turner said that I have the heart of a young man.

On Becker's analysis, Elizabeth's father is considered committed to the truth of the unstated premise *Dr. Turner is an expert in his field*. However, if his wife or his daughters successfully challenge this implicit premise, his assertion would be compromised as an argument because it would turn out to be irrelevant, which is as bad as falseness. Yet, the assertion of Elizabeth's father would not be affected. Indeed, he still communicated that he has the heart of a young man, even if the strength of his argument is lost. In other words, the speaker's commitment to practical relevance "implies the commitment to the truth of his implicit premises if his assertion is to be taken as an argument" (Becker 2012: 270). Note that even if Becker tries to avoid the notion of truth, it is still present in his research.

3.3 Conclusion

Accounts of commitment are surprisingly homogeneous in studies on dialogue and argumentation. Although the various studies discussed above acknowledge the notion of private commitment, they exclusively focus on its public expression. These studies crucially construe commitment as an observable and traceable phenomenon, thereby overlooking any psychological construal of this notion, even if they postulate the existence of a commitment store. We saw that studies on dialogue and argumentation provide explicit definitions. They also deal with the implicit side of communication and take into consideration both the speaker's and the hearer's perspective. While most of the accounts reviewed earlier are mainly speaker-oriented, these studies consider addressees' commitments when they investigate questions, for instance

(see Beyssade and Marandin 2009; Gunlogson 2008 and Malamud and Stephenson 2015).

As mentioned in Chapter 2, Speech Act Theory has already moved away from concepts of truth and belief and tends to focus on a more contractual aspect of commitment, i.e. the coherence of speaker's attitude and future conduct after the performance of a speech act. Studies on dialogue and argumentation seek to remove any psychological dimension left from their account of commitment: they only want to deal with discourse commitments, that is, explicitly communicated and observable commitments, which are fixed once they have been made except in cases of revision or retraction. The key criterion is therefore neither belief nor sincerity, it is consistency. As soon as a speaker is committed to a proposition, her subsequent moves are bound to be consistent with her previous commitments. Commitments are therefore compared to obligations in the sense that they restrict the speaker's behaviour (Becker 2012: 263). In this framework, the speaker is committed by the utterance to a coherent subsequent behaviour but she is also committed to different aspects of this utterance.

The definitions which are provided within the field of dialogue and argumentation are more explicit and less scarce than in the other domains previously surveyed. Indeed, commitments are often defined as a relation between a speaker and what she publicly communicates as true. The speaker's sincerity or belief are however not an issue. Yet, the participant has an obligation linked to assertions: she needs to defend it if it is subsequently challenged. Therefore, commitment restricts the speaker's behaviour after she produces an assertion.

These approaches take the participants in an argumentative dialogue to be committed as soon as they produce an assertion. The addressee is also sometimes viewed as being committed by the speaker's questions. Unlike other frameworks such as Enunciation Theory or the ScapoLine, the participant is not an abstract entity but a real speaker in an actual communicative exchange.

Whereas Hamblin (1970) only focuses on assertions, Beyssade and Marandin (2009) widen the perspective by claiming that a participant can be committed to different types of content: a proposition in the case

of assertions, a propositional abstraction in the case of a question and an outcome for a directive (Coltier et al. 2009: 4). According to Gunlogson (2008) and Becker (2012), participants are committed to consistency, which is a crucial aspect of argumentative dialogue and behaviour in general. Speakers are also committed to entailments, presuppositions, implicit premises, non-cancelled implicatures as well as to the practical relevance of their assertions.

As mentioned earlier, within this framework, participants are committed the moment they produce an utterance. Yet, if an inconsistency is found in light of new information, or if a commitment is challenged by the other party, the system of persuasion dialogue allows more or less free retraction of commitments. Thus, participants may retract commitments but not any proposition at any given time in the dialogical exchange: they must follow the rules (see Walton 2008b: 167). Although Gunlogson (2008) claims that a speaker is committed when she expresses a question or a declarative with a rising intonation (provided that her addressee ratifies her proposition), Malamud and Stephenson (2015) suggest that not all commitments are strong and pervasive and put forward the idea of "projected commitments", which are tentative and which commit neither the speaker nor the hearer.

From this perspective, commitment is generally not regarded as a graded notion. However, Walton (1996: 172) allows for the speaker to be for, against or undecided with respect to the proposition in question. As for Becker (2012: 268–269), he acknowledges that commitment to truth is not graded. Nevertheless, this is not the case for commitment to practical relevance as it is thought to be a graded notion.

In what follows, I will briefly review the basic tenets of Relevance Theory, the domain which provides the grounds for the model of commitment developed in Chapter 6. I will then discuss its various direct and indirect approaches to commitment.

4 Relevance Theory

4.1 Introduction

Even though *Relevance* (Sperber and Wilson 1995) does not address commitment directly, subsequent relevance-theoretic studies discuss this notion with respect to assertions (Jary 2010, 2011), modality (Papafragou 2000a/b, 2006) or evidentiality (Ifantidou 2001). In this chapter, these works will be referred to as "indirect approaches". By contrast, the label "direct approaches" corresponds to accounts which explicitly theorise commitment either from a hearer-oriented (Morency et al. 2008; de Saussure and Oswald 2008, 2009) or a speaker-oriented perspective (Moeschler 2013). Chapter 4 begins with a survey of the basic tenets of Relevance Theory: it covers its origins, definitions, main principles and applications. The two types of approach to commitment mentioned above are then surveyed and finally, the questions raised earlier are answered within the relevance-theoretic framework.

4.2 Relevance Theory

Relevance Theory describes communication as a process of inferential recognition of the speaker's intentions (Sperber and Wilson 1995: 9). It develops two of Grice's main claims, i.e. that a crucial aspect of human communication is the expression and recognition of intentions, and that an act of ostension automatically creates expectations which lead the hearer to the speaker's intended meaning. According to Grice (1967),

the Cooperative Principle and the four ensuing maxims of Quantity, Quality, Relation and Manner play a major role in the interpretive process.[24] [25] Sperber and Wilson (1995) agree that general principles of communication are involved in the inferential process. However, they chose to keep and modify only one of the four Gricean principles: the principle of relevance (Wilson 1994: 57).

4.2.1 Relevance and cognition

From a cognitive perspective, Relevance Theory views pragmatics as a sub-module of a mind-reading module, that is the individuals' ability to attribute beliefs, intentions and desires to their addressee. This dedicated comprehension procedure is "an automatic application of a relevance-based procedure to ostensive stimuli, and in particular to linguistic utterances" (Sperber and Wilson 2002: 27–28).

According to Relevance Theory, our cognition is mainly aimed at improving our knowledge of the world, by adding more accurate and more easily retrievable information. The cognitive principle of

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24 The Cooperative Principle: "Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged" (Grice 1967: 26).

25 Maxim of Quantity:

(1) Make your contribution as informative as is required (for the current purpose of the exchange).
(2) Do not make your contribution more informative than is required.

Maxim of Quality "Try to make your contribution one that is true":

(1) Do not say what you believe to be false.
(2) Do not say that for which you lack adequate evidence.

Maxim of Relation: "Be relevant".
Maxim of Manner:

(1) Avoid obscurity of expression.
(2) Avoid ambiguity.
(3) Be brief (avoid unnecessary prolixity).
(4) Be orderly (Grice 1967: 26–27).

relevance (Sperber and Wilson 1995: 46; Wilson and Sperber 2004: 255) states that human cognition is geared to the maximisation of relevance (Sperber and Wilson 1995: 49). Thus, we try acquiring new information as efficiently as possible: by maximising the relevance of the assumption expressed, we obtain the greatest contextual effects for the smallest processing effort (Sperber and Wilson 1995: 47, 49, 142–143). Indeed, our perceptual system monitors our environment for relevant stimuli only, our memory is formed to retrieve relevant background information, and our inferential system is made in such a way as to maximise the derivation of cognitive effects. These processes are construed as automatic and are thought to be achieved through imperfect heuristics (Clark 2013: 107).

Any external stimulus (such as visual representations, sounds, utterances, etc.) or internal representation (e.g. thoughts, memories, conclusions, inferences, interpretations, and so on) which provides an input to cognitive processes may be relevant to an individual at a given time. An input is relevant as soon as it connects with background information that is available to the individual in order to produce conclusions which are relevant to her/him, including answering a question, improving her/his knowledge, correcting a mistaken assumption, and so on. (Wilson and Sperber 2004; Clark 2013: 30, 100). Sperber and Wilson (1995: 121) claim that relevance can even be achieved by the expression of an irrelevant assumption, provided that it is itself deemed relevant by the speaker. As mentioned earlier, relevance is assessed in terms of cognitive effects and processing effort:

(33) **Relevance of an input to an individual**

a. Other things being equal, the greater the positive cognitive effects achieved by processing an input, the greater the relevance of the input to the individual at that time.
b. Other things being equal, the greater the processing effort expended, the lower the relevance of the input to the individual at that time (Wilson and Sperber 2004: 252).

Relevance is therefore a property of inputs to cognitive processes which is measured in terms of benefits and costs: the greater the benefits, the

greater the relevance, but the greater the processing cost, the lower the relevance.

An assumption is relevant only when it produces cognitive effects, understood as contextual effects within a cognitive system, i.e. as adjustments to the individual's representation of the world (Clark 2013: 31, 100). Cognitive effects are the result of a fruitful interaction between new and old information (Sperber and Wilson 1995: 109). Sperber and Wilson (1995) distinguish among three main ways in which new information interacts with existing assumptions: it can strengthen or contradict and eliminate an existing assumption, or combine with the context to yield new contextual implications. A positive cognitive effect is defined as worth having for an individual and provides a more accurate representation of the world. For example, positive cognitive effects include true conclusions, warranted strengthening and revisions of held assumptions (Clark 2013: 77–78, 102–103).

4.2.2 Relevance and communication

From a communicative perspective, an utterance raises expectations of optimal relevance and these expectations are specific and predictable enough to guide the hearer towards the speaker's intended meaning (Sperber and Wilson 1995: 90; Wilson and Sperber 2004: 1; Clark 2013: 91). This is what Wilson and Sperber (2004: 256) call the communicative principle of relevance:

(34) Every ostensive stimulus conveys a presumption of its own optimal relevance.

The object of study of Relevance Theory is thus overt-intentional, ostensive-inferential communication. This kind of communication differs from accidental information and covert communication since the speaker clearly intends the hearer to recognise her wish to communicate. Ostensive-inferential communication implies an act of ostension by the speaker and inference by the hearer. Indeed, the speaker produces a stimulus which makes it mutually manifest to the addressee that she wants to make manifest some assumptions (Sperber and Wilson

1995: 63). Once the hearer recognises that the speaker produced an ostensive act of communication, then the presumption of optimal relevance guides him through the interpretive process (Clark 2013: 113). When the hearer wants to make sense of an utterance, he does so by attributing two main intentions to the communicator:

(35) a. The informative intention: the intention to inform the audience of something;
b. The communicative intention: the intention to inform the audience of one's informative intention (Wilson and Sperber 2004: 255).

Communication is construed as involving two processes: a process based on coding and decoding and one based on ostension and inference. The former is thought to serve the latter, which is autonomous (Sperber and Wilson 1995: 176). In this view, utterance interpretation is not construed as a deductive process but as a non-demonstrative inferential procedure, a "fallible process of hypothesis formation and evaluation" (Wilson 1994: 47). The hearer automatically infers the intended meaning by taking into account contextual assumptions based on the evidence provided by the speaker and general principles of communication (Sperber and Wilson 1995: 65, 67; Ifantidou 2001: 60; Clark 2013: 132). As a result, the hearer's interpretation can be confirmed but not proved.

When a speaker produces an utterance, she claims her addressee's attention and presents the propositional content expressed as relevant and therefore worth processing, which means that the utterance will give rise to enough cognitive effects to justify the hearer's effort. An ostensive stimulus is said to be optimally relevant to an individual if:

(36) a. It is relevant enough to be worth the audience's processing effort;
b. It is the most relevant one compatible with communicator's abilities and preferences (Wilson and Sperber 2004: 257).

The communicative principle of relevance is conceived of as "an exceptionless generalization about what happens when someone is addressed" (Wilson 1994: 56) and is not to be thought of as a maxim. As Sperber and Wilson (1995: 162) put it, "communicators do not 'follow'

the principle of relevance; and they could not violate it even if they wanted to. The principle of relevance applies without exception".

As mentioned above, interpretation is construed as a non-demonstrative process of hypothesis formation and evaluation. The hearer makes assumptions regarding the speaker's intended meaning, on the grounds of her ostensive stimulus. This intended meaning includes what the speaker intended to say and to imply as well as her attitude towards what was said and implied. To get the intended relevance of an utterance is therefore to retrieve the intended combination of content, context, attitude and implication (Wilson 1994: 46; Ifantidou 2001: 60; Iten 2005: 68).[26]

However, it is widely acknowledged now that the speaker's meaning is semantically underspecified. In fact, linguistically encoded meaning never fully determines the speaker's intended communicated content (Wilson 1994: 38; Carston 2002: 49). Utterances are often ambiguous (Wilson and Sperber 1992: 228) and may have a vast range of different interpretations: they can be construed literally, metaphorically, loosely, ironically, and so on (Blakemore 1992; Carston 2002). According to Carston (2002: 206; 117), no utterance will ever achieve full explicitness, not even an explicitly communicated content. Explicit contents, just as their implicit counterparts, are always – to some extent – context-dependent.

In Relevance Theory, the opposition between explicatures and implicatures reflects two ways of deriving communicated assumptions: for the former, by developing and enriching a linguistically logical form; and for the latter, by pragmatic inference only (Carston 2002: 142).

Explicatures are of two types: first-order and higher-level explicatures. A first-order explicature is construed as "an ostensively

26 Within Relevance Theory, context is a variable understood as "the set of assumptions brought to bear in arriving at the intended interpretation" (Wilson 1994: 41; Sperber and Wilson 1995: 142). This notion is defined in psychological terms, being a "subset of the hearer's beliefs and assumptions about the world" (Blakemore 1992: 18).

communicated assumption which is inferentially developed from one of the incomplete conceptual representations (logical forms) encoded by the utterance" (Carston 2002: 377). It is the result of the first type of enrichment process (including syntactic disambiguation, referent assignments, resolution of semantic vagueness, retrieval of elliptic material, etc.). Explicatures are traditionally thought to be truth-conditional. A second type of development process consists in embedding the enriched proposition under a speech-act or a propositional attitude description, resulting in the speaker's intended epistemic stance, her attitude towards the proposition expressed, her emotion towards the utterance content or the kind of speech act she wanted to perform (Ifantidou 2001; Iten 2005; Wilson 2012; Clark 2013). Higher-level explicatures are generally viewed as explicitly communicated but as making no contribution to the proposition falling within their scope. It is taken for granted that hearers always infer at least one higher-level of embedding for any proposition expressed (Clark 2013: 209).

An implicature is defined as an implicitly communicated assumption which is derived only via processes of pragmatic inference (Sperber and Wilson 1995: 183; Carston 2002: 377). Thus, implicatures are not developed from a logical form and they are not a combination of decoding and inference: they are all inference. According to Grice (1975: 314), conversational implicatures are defeasible, that is, they are cancellable since the speaker has the possibility of denying having communicated them. More specifically, weak implicatures fall under the hearer's responsibility (Sperber and Wilson 1995: 197, de Saussure 2003: 123, 132). Take the case of the metaphor in (37) or irony in (38):

(37) This man is a Brad Pitt.
(38) His talk was fascinating.

Blakemore (1992: 171) claims that "the more creative the figure, the greater the responsibility the hearer has in the interpretation process". Hence, the more inferential process is required to retrieve the speaker's intended meaning, the less she is responsible for the hearer's interpretation of her utterance. In (37), the speaker may have wanted to convey various meanings, including (37a) and (37b):

(37) a. This man is gorgeous
b. This man has more than four children.

Similarly, if the speaker uttering (38) attends an incredibly boring conference, it is clear that she means the opposite, i.e. that the speaker's talk was far from interesting. Yet, if the orator were to overhear her utterance, he might construe (38) as a praise and not as a criticism.[27] So, when the speaker conveys her intended meaning via an implicature, she must believe that it is worthwhile for the hearer to go through this extra processing. She also needs to take into account her addressee's contextual resources and assume that the contextual assumptions required to derive the intended interpretation are accessible to him (Blakemore 1992: 125, 128).

To recover the intended implicature, the hearer must access the intended contextual assumptions and conclusion, i.e. what Sperber and Wilson (1995) call the implicated premises and the implicated conclusions. While implicated premises are inferred from utterance production and the presumption of relevance, implicated conclusions are inferred through the interaction between the explicature of the utterance and its contextual assumptions (Clark 2013: 216, 218). Blakemore (1992: 123–126) provides the following example, reproduced below in (39):

(39) A: Did I get invited to the conference?
B: Your paper was too long.
a. Implicated premise: If your paper is too long for the conference you will not be invited.
b. Implicated conclusion: Speaker A did not get invited to the conference.

The conclusion in (39b) can only be accessed if the hearer derived the proposition expressed by the utterance, including (39a).

Utterances do not have a fully determined implicature. A wide range of possible implicatures consistent with the principle of relevance

27 Note however that this interpretation will crucially depend on the speaker's tone.

is therefore available. However, implicatures vary in strength (Sperber and Wilson 1995: 197, 199; Blakemore 1992: 130; Clark 2013: 239). Some implicatures are made so strongly manifest that the addressee cannot avoid recovering them (Sperber and Wilson 1995: 197). The strongest implicatures are those with the tighter constraints: they have fully determinate implicated premises and conclusions that the hearer is compelled to derive in order to access an interpretation consistent with the principle of relevance. Consider Sperber and Wilson's (1995: 194) examples:

(40) *Peter*: Would you drive a Mercedes?
Mary: I wouldn't drive ANY expensive car.

The following strong implicatures (41) and (42) must be retrieved if the interpretation of Mary's utterance is to be consistent with the principle of relevance:

(41) A Mercedes is an expensive car.
(42) Mary wouldn't drive a Mercedes.

In Sperber and Wilson's (1995) view, Mary takes full responsibility for the implicatures in (41) and (42).

As far as the weak implicatures in (43) and (44) are concerned, the addressee is not encouraged to derive any particular premise and conclusion because they present less tight constraints:

(43) People who would not drive an expensive car would not go on a cruise either.
(44) Mary would not go on a cruise.

As a result, the interpretation is more tentative and the addressee takes full responsibility for deriving these implicatures.

As previously highlighted, an utterance has various possible interpretations which may be compatible with linguistically encoded information. Yet, not all these interpretations occur to the hearer at the same time since some of them are more accessible and others require more effort to be derived. It is because processing effort increases when the accessibility of an interpretation decreases that the hearer is

allowed to follow a path of least effort (Sperber and Wilson 1995; Iten 2005: 68).

This idea is known as the relevance-theoretic comprehension strategy: the hearer must consider cognitive effects in their order of accessibility and should stop when the expected level of relevance is reached. The principle of relevance is powerful enough to help the hearer select one interpretation and reject the others. Thus the first acceptable interpretation satisfying the principle of relevance is the only acceptable interpretation (Wilson 1994: 44, 51–52). As a result, a speaker aiming at optimal relevance should produce an utterance worth the hearer's attention and spare him unnecessary processing effort so that her intended meaning is the first acceptable interpretation occurring to him.

The comprehension sub-tasks sketched above are construed as online processes but they are not understood as sequentially ordered. Explicatures and implicatures are believed to be derived through a process of mutual parallel adjustment. Hence, the comprehension procedure is believed to involve simultaneous interpretive processes (Wilson 1994; de Saussure 2003; Wilson and Sperber 2004; Morency et al. 2008; Padilla Cruz 2012; Clark 2013).

4.3 Relevance-theoretic approaches to commitment

As was pointed out in the introductory section of this chapter, Sperber and Wilson (1995) do not explicitly address the notion of commitment in communication. Yet, this notion is referred to in accounts regarding assertion (Jary 2010, 2011), epistemic modality (Papafragou 2000a/b, 2006) and evidentiality (Ifantidou-Trouki 1992; Ifantidou 2000, 2001). Furthermore, Relevance Theory provides concepts such as higher-level explicatures and strength, which are tightly linked to commitment as it is defined in Chapter 6.

4.3.1 Indirect approaches: Assertion

It is generally agreed that a categorical assertion is the strongest way to express speaker commitment.[28] According to Lyons (1977: 808–809; 1995: 331), there is no epistemically stronger statement than a categorical assertion as it implies full epistemic commitment. Similarly, Nølke (1994: 84) construes the assertion as "auto-evidential", that is, as presented as reliable *per se*. When the speaker does not explicitly indicate the evidence supporting her information or her commitment to the factuality of her utterance, she is usually thought to indicate that she has a full epistemic warrant for what she communicates. If she decides to present some evidence or to qualify her commitment to the truth of the proposition expressed, then her commitment is construed as weakened.

From a relevance-theoretic perspective, an assertion is conceived of as a descriptive representation as it represents some state of affairs. This type of representation implies commitment (Sperber and Wilson 1995: 227, 247), as opposed to an interpretive representation, which involves a second-order representation taking another representation as a complement, thereby indicating that the view presented in the utterance is not the speaker's (Sperber and Wilson 1995: 68, 231; Traugott 2003: 663). An interpretive representation is thus believed to suspend speaker commitment.

When a speaker asserts a propositional content, she describes a state of affairs and signals that she believes that what she communicates is true (Sperber and Wilson 1995: 180, 227). In this view, the assertion comes with a "tacit guarantee of truth" (Sperber and Wilson 1995: 49) since the speaker's informative intention is to induce in her addressee the belief that her utterance is true (1995: 57). Sperber and Wilson draw a distinction between *saying that p* and *asserting that p*. The former presents *p* as a description of an actual or as a possible state of affairs

28 A categorical assertion refers to an assertion which is not modified by any linguistic marker (such as a modal, an evidential expression or a propositional attitude).

in the world, whereas the latter indicates that the speaker undertakes a commitment to its truth (Jary 2011: 269). An assertion is viewed "as a premise to be employed in inference, and commits the speaker to justify her claim by giving reasons, if challenged" (Jary 2011: 278). This claim is in line with how studies on dialogue and argumentation view assertion: with a burden of proof attached to it.

Jary (2011: 274–275) defines the assertion as involving the presentation of the proposition expressed as relevant to an individual "in its own right", i.e. as serving as a premise in the derivation of contextual effects. From this point of view, assertions allow propositions to be used in inferences aiming at improving the individual's representation of the world. Questions and commands cannot achieve that effect for they only express an attitude towards a proposition (Jary 2011: 278). When the speaker makes an assertion, she shows that the communicated assumption is "worthy of adoption as a basic, non-reflective belief which should form part of the hearer's fundamental representation of the world" (Jary 2011: 279).[29]

To present a proposition in the form of a declarative is not sufficient for an utterance to convey assertoric force. Some instances of declarative mood are not assertions, such as explicit performatives, promises and declarative directives since the hearer can neither ask for justification nor reject the proposition expressed (Jary 2011: 280). According to Jary (2011: 279), "for assertoric force to follow, the utterance must have the potential to trigger certain social and cognitive safeguards". Sperber (2001) showed that communication is made of both opportunities and risks: inferred information can improve the individual's representation of the world but it might as well lead him to degrade it if the communicated information is false. Cognitive and social safeguards have thus developed to protect communicators from misinformation and deception (see Section 6.5 for a detailed discussion

29 Sperber (1997) defines non-reflective beliefs (i.e. what he calls "intuitive beliefs") as representations of actual states of affairs in the individual's cognitive environment. This type of belief is used as premises in practical and epistemic inferences, which is not the case of reflective beliefs, understood as metarepresentational beliefs.

of epistemic vigilance mechanisms). On the cognitive side, the individual has the ability to treat utterances as representations and therefore as potentially false. If the hearer judges the assertion to be true, he is likely to accept it, whereas if he considers it false, he is likely to reject it. From a social perspective, a speaker who makes an assertion is liable to challenge and to social sanctions if her assertion is proven to be false (Jary 2011: 279).[30]

Jary (2011: 277) argues that a speaker who produces an assertion takes on an "assertoric commitment", defined as "the commitment to act in accordance with one's assertions and the inferential consequences of those when they are combined with one's prior assertoric commitments". In other words, by producing an assertion, the speaker's subsequent verbal and non-verbal behaviour is constrained. Indeed, when the speaker asserts a content, she offers a piece of information that may be accepted as a belief, rejected or challenged by her addressee (Jary 2011: 278).

Jary posits that when the speaker inserts in her utterance a propositional attitude or a parenthetical expression (such as *to think*, *to be convinced that*, and so on), she indicates that the relevance of her utterance lies elsewhere and that she avoids taking on assertoric commitment. According to Jary (2011: 283–284), this assertoric responsibility is only assumed for the higher-order proposition expressed by the main clause. Let us consider one of his examples:

(45) I think I saw John today.

In (45) the speaker avoids taking on assertoric responsibility. Even though she is committed to the fact that she thinks *p*, she is not committed to *p*. Consequently, the speaker only takes on assertoric commitment for the content of the main clause when she chooses to present it linguistically as relevant in its own right, that is, as a categorical assertion.

30 According to Becker (2012: 263), consequences for a false assertion range from loss of authority to legal liability.

4.3.2 Indirect approaches: Modality and evidentiality

We have just seen that when the speaker marks her utterance with an epistemic modal or with an evidential, she is generally thought to weaken her commitment to the proposition expressed. Indeed, she communicates that she does not possess all the information or knowledge required to provide a categorical assertion at the time of utterance production. This does not necessarily mean she refuses to undertake commitment for what she communicates.

Modality and evidentiality have been investigated by many theorists in various fields of linguistic enquiry. According to the extended literature devoted to these topics, modality and evidentiality are either in a relation of inclusion, disjunction, overlapping or subordination (Dendale and Tamowski 2001: 341–342; Hart 2011: 758). It is way beyond the scope of this overview to resolve these theoretical disputes. What falls within the aim of this discussion is to review common definitions of modality and evidentiality and to survey relevance-theoretic approaches to commitment linked to these two domains.

4.3.2.1 Epistemic modality

Some authors have claimed that the definition of epistemic modality is relatively uncontroversial. Numerous definitions have been provided but the resulting debate is far from being settled. The existing definitions oscillate between notions such as knowledge and belief (Portner 2009: 2); commitment to the truth of the proposition expressed (e.g. Traugott and Dasher 2007: 106); the description of the speaker's stance (Hassler 2010: 243); the degrees of probability, the possibility, certainty or reality of the state of affairs (Lyons 1977: 801–802; De Haan 2006: 29–30; Nuyts 2006: 6; Marín-Arrese 2007: 84, 2009: 238; Cornillie 2009: 46); the evaluation of the likelihood that an event is real (in terms of commitment), (Cornillie 2009: 44, 51, 59); the evaluation of evidence (De Haan 1999: 85, quoted by Hart 2011: 759); the speaker's confidence or lack of confidence in the truth of the proposition expressed (Coates 1983: 18); non-factivity, which means that an epistemic modal expression does not commit the speaker to either the truth

or the falsity of the proposition expressed (e.g. Lyons 1977: 795; Coates 1983: 235–236); evasion, commitment suspension or the speaker's reservations about the truth of the proposition expressed, among others (Coates 1983: 235–236).

While the notion of speaker commitment is traditionally used to account for a broad range of modal expressions such as deontic, epistemic, evidential expressions and discourse markers (Cornillie and Delbecque 2008: 38), it specifically plays a role in the literature on epistemic modality (Lyons 1977; Coates 1983; Palmer 1986; Papafragou 2000a/b; Nuyts 2001; Pietrandrea 2008). The notion of commitment is highly relevant and widely referred to in this field, even though it has hardly been theorised and its definition is often left to be inferred (Pietrandrea 2008: 222).

From this perspective, commitment usually corresponds to the attitudinal counterpart of epistemic modality (Pietrandrea 2008: 221), which, broadly speaking, refers to knowledge and beliefs, as opposed to facts (Traugott and Dasher 2007: 106). Commitment is generally construed as the speaker's attitude towards the truth of some propositional content (Brabanter and Dendale 2008: 6). It is conceived as a mental state, a truth-value judgment already present in the speaker's mind before utterance production (Pietrandrea 2008: 222).

As a result, commitment is seen as a graded notion: because linguistic markers encoding epistemic modality are understood to express different degrees of speaker commitment, the speaker is said to be either weakly or strongly committed to the proposition she communicates. The degree of speaker commitment amounts to the extent to which the proposition expressed by the modalized utterance is likely to become or to be true (Cornillie and Delbecque 2008: 38). In this view, epistemic modality is represented as a scale ranging from the absolute certainty that the communicated state of affairs is real to the absolute certainty that it is not (Nuyts 2006: 6). As mentioned earlier, epistemic modals are believed to belong to the category of linguistic markers which have a weakening effect on the speaker's claim to truth. According to Coates (1983: 133–134, 137–138, 149), some epistemic modals such as *may* and *might* are often used as hedges. It is also the case of propositional

attitudes such as *I suppose*, *I think*, *I don't know*, *I wouldn't know*, *I'm not sure*, *I mean*, *It seems to me*, and so on. When a speaker uses a hedge in her utterance, she is considered to avoid undertaking any commitment to the factuality of the utterance (Coates 1983: 137–138, 149). Therefore, the literature on epistemic modality generally construes an utterance modified by an epistemic modal as conveying a lesser degree of speaker commitment than a categorical assertion.

Some researchers (Coates 1983; Palmer 1986; Pietrandrea 2005, among others) also distinguish between markers of weak and strong commitment. Weak commitment is expressed by markers including *could*, *may*, *might*, *possibly*, *I think*, *I guess*, for instance, whereas strong commitment is conveyed by expressions such as *must*, *necessarily*, *indeed*, *actually*, *truly*, and so on. Epistemic modality is sometimes compared to deixis, expressing more or less distance from the actual world (Traugott and Dasher 2007: 107). Consequently, the utterance (46) expresses confidence since the epistemic modal *must* is thought to indicate a close proximity to the actual referenced world.

(46) Jane must be delighted.

However, according to Traugott and Dasher (2007), a plain assertion like (47) is the only form expressing the speaker's belief that the utterance coincides with the actual world.

(47) Jane is delighted.

(48) and (49) indicate an even greater distance from the actual world than (46), *might* being the modal conveying the least confidence in the proposition expressed.

(48) Jane may be delighted.
(49) Jane might be delighted.

Therefore, within this framework, linguistic markers indicating epistemic modality are thought to express the degree of speaker commitment.

Relevance-theoretic studies on modality also take epistemic modality to indicate the speaker's propositional attitude, which is thought to include "the strength of her belief in, certainty about or commitment to the truth of her assertion" (Wilson 2012: 24). In her early works, Papafragou (2000b) construed commitment as a "subscription to truth" and agreed with the widely held idea that epistemic modals convey degrees of speaker commitment. If a speaker adds an epistemic modal to her utterance, she conveys that she does not want to commit to the cognitive effects a plain assertion would trigger. Thus, the speaker indicates that she weakens her commitment (Papafragou 2000b: 528).

In a subsequent proposal however, Papafragou (2006) discards the idea that epistemic modals indicate degrees of speaker commitment since it implies that epistemic modals do not contribute to truth-conditions. On this rejected view, epistemic modality is part of the speaker's attitude towards the communicated proposition: commitment is construed as the output of a post-propositional pragmatic enrichment, which lies outside the scope of truth-conditionality.

Yet, Papafragou (2006: 1693) supports the idea that objective and subjective interpretations of epistemic modals (see Lyons 1977, 1995 for the origin of that distinction) both contribute to the propositional content of the utterance for which the speaker can be held responsible later in the communicative exchange. The objective interpretation is construed as truth-conditional and corresponds to the view that the speaker reports a certain state of affairs as a neutral observer, thereby committing herself to the factuality of the piece of information. As a result, the speaker's statement can be denied or questioned. The subjective interpretation is thought to be non-truth-conditional and refers to the fact that the speaker expresses either her own beliefs or her attitudes, thus distancing herself from the factuality of the embedded proposition. One of Lyons's examples is reproduced in (50):

(50) It may rain tomorrow.

(50) will have different interpretations if it is uttered by a layman or by a meteorologist. On the subjective reading, (50) is the view of someone's personal (sometimes fallible and incomplete) reasoning. On

its objective reading, it is a conclusion grounded on scientific evidence and measurements. Since the last reading is based on a stable and reliable body of data, it is viewed as truth-conditional (Lyons 1977: 797–799, 1995: 330–331).

Now, Papafragou (2006: 1691) argues that even subjective modality plays a propositional role. Consider her examples:

(51) a. My grandfather must be sick.
b. My grandfather may be sick.
c. My grandfather is sick.

According to her, if epistemic modal verbs do not contribute to the truth-conditions of the proposition expressed, (51a-c) should express that the speaker's grandfather is sick, but with different strength of commitment. If the grandfather is healthy, (51a-c) would be considered false. However, most people would agree that it is only in (51c) that the speaker communicates such an inaccuracy. In the other two examples, the speaker only indicates that, as far as she knows, it is necessary or possible that her grandfather is sick. For Papafragou (2006: 1693), this suggests that epistemic interpretations of modals belong to the propositional content of the utterance for which the speaker can be held responsible.

Whereas traditional conceptions of epistemic modality do not include speaker commitment in the propositional content, Papafragou claims that objective and subjective epistemic modals are indexical. In the former case, the possible worlds in the conversational backgrounds consist of the publicly available evidence (i.e. what is known by the community), whereas in the latter, it is restricted to what the current speaker knows at the time of utterance production (Papafragou 2006: 1695). The speaker is thus the only member of the group and reasons on her private beliefs. In its subjective construal, epistemic modality is dependent on the speaker and on the moment of utterance production, which is not the case in its objective reading, as it is not linked to the "here and now" component of the communicative exchange. Consequently, the indication of speaker commitment is not to be understood as an intuition about truth conditions but about "the type of epistemic

agent providing the background assumptions for epistemic modality" (2006: 1700). Papafragou links the notion of commitment to a type of epistemic agent providing background information for epistemic modality, which is situated in the propositional content. In line with what Ifantidou (2001) argues for some evidential expressions, commitment is thus retrieved at the explicature level.

4.3.2.2 Evidentiality

Two main conceptions of evidentiality coexist in the prevailing literature: the narrow conception (defended by de Haan 2001, Lazard 2001, Aikhenvald 2004, among others) and the wide view (which will be assumed in what follows and which is adopted by Palmer 1986, Ifantidou 2001 and Rooryck 2001, *inter alia*; see also Schenner 2010: 158–159). From the former perspective, evidential expressions indicate the speaker's type of evidence (or source of information) for her claim, whereas from the latter, they express both the speaker's type of evidence for her claim and the degree of its reliability, probability or certainty (Schenner 2010: 158–159; Behrens 2012: 193–194).

The wide view sees evidentiality as encompassing markers of epistemic modality, which makes overlaps between the two categories unavoidable. If, for instance, a linguistic marker like *I think* conveys that the piece of information is more or less certain (and therefore functions as a marker of epistemic modality), it can also refer to the way the communicated piece of information was acquired (namely, by inference), thereby functioning as an evidential. The present research acknowledges that such overlaps exist but does not pursue the issue further.

In the wide view, evidentials have mainly two functions: they indicate the source of knowledge and they express the speaker's degree of certainty about what she utters (Ifantidou 2001: 5). In the first case, evidentials linguistically encode information about the source of knowledge (see Chafe and Nichols 1986: vii; Chafe 1986: 271; Ifantidou 2001: 8). They convey that there is evidence leading to the utterance and what type of evidence there is (Cornillie 2009: 52; Anderson

1986: 273).[31] By doing so, they give indication regarding information acquisition, that is, if it is acquired by perceptual evidence, hearsay, inference or memory (Schenner 2010: 158–159). In the second case, the speaker characterises the certainty of the piece of information she conveys (Ifantidou 2001: 195; Mushin 2001: 58; Marín-Arrese 2007: 85). The model of commitment put forward in Chapter 6 is in part grounded on this wide view of evidentiality, as it takes into consideration both the certainty of the communicated piece of information and its speaker's reliability.

Ifantidou (2001: 5–8) provides a list of evidential expressions, which she splits into the two main categories just mentioned: evidentials indicating the source of knowledge and those expressing the speaker's degree of certainty towards the piece of information she communicates. In the former category, she distinguishes between sensory and perceptual evidence (e.g. *I see*, *I hear*, *I feel*, *it tastes*, *it looks like*, *it sounds like*, *it feels like*, *it smells like*, etc.), hearsay (e.g. *John tells me*, *I hear*, *people say*, *he is said*, *he is reputed*, *allegedly*, *reportedly*, *it seems*, *it is supposed*, *apparently*, etc.), inference (e.g. *presumably*, *it seems to, must be*, *must have*, *I gather*, etc.) and memory (e.g. *I remember*, *I recall*, *I recollect*, etc.). In the latter category, evidentials are construed as communicating the speaker's degree of certainty via some propositional attitudes and parenthetical expressions (e.g. *I think*, *I know*, *I suspect*, *I guess*, *I suppose*, etc.), adverbials (e.g. *probably*, *certainly*, *possibly*, *undoubtedly*, *surely*, *evidently*, *obviously*, etc.) and epistemic modals (e.g. *may*, *might*, *can*, *could*, *must*, *will*, *ought to/should*, etc.).

This leads us to two types of evidence: direct and indirect evidence. Direct evidentials (which consist in sensory or perceptual evidence) indicate that the speaker witnessed the action she communicates, whereas indirect evidentials express that the information is either deduced (e.g. inferred evidence) or heard about from others (e.g. reported evidence). Direct evidence is often deemed more reliable in terms of commitment

31 The source of knowledge may be the speaker or the way evidence is acquired.

than indirect evidence. Indeed, according to Cornillie and Delbecque (2008: 39),

> the degree of proximity of the evidence with regard to the speaker – hearsay being more distal than inference – is said to determine the degree of speaker commitment. Direct evidence is valued highest, while hearsay is usually considered lowest on the scale of evidential speaker commitment.

The idea that direct evidence is more reliable than indirect evidence is rooted in the assumption that perceptual evidence, even though not necessarily more likely to be true, is more related to reality (Papafragou, Li, Choi, and Han 2007: 257).

There are however some caveats with respect to this categorisation. Fitneva (2001: 404) warns the readers against a direct correlation between source types and degrees of validity, since context obviously plays a key role in assigning the source of information a certain degree of reliability. The same source of information may indeed be perceived very differently by her addressees, depending on the context, on their previous experiences and on the speaker's status, that is, whether she is considered (un)trustworthy or an expert on the topic under discussion, for instance. Hence, the boundary between direct and indirect evidence remains unclear.

Just as in the literature on epistemic modality, studies on evidentiality repeatedly refer to the notion of commitment, defined by Cornillie and Delbecque (2008: 38) as "the speaker's appraisal of the knowledge used and the hearer's interpretation of its reliability". Evidential expressions are construed as indicating different degrees of speaker commitment (Ifantidou 2001; Marín-Arrese 2007), which is viewed as a graded notion computed on the basis of the proximity of the evidence. As suggested earlier, the more direct the evidence, the more reliable the piece of information. Conversely, the less direct the evidence, the less reliable the piece of information.

In line with the traditional reading of epistemic modality, evidentials are conceived of as having a limiting effect with respect to actual evidence, even in the case of strong markers such as *I am sure that p* or *I am convinced that p*. When the speaker embeds her utterance under

this kind of expression, she chooses to linguistically mark it as weaker than a categorical assertion.[32] According to Hassler (2010: 243–244), if the proposition the speaker wants to express is evident enough, she is not required to mark it as obvious. Such a linguistic marking indicates the speaker's reservation about the truth of what she communicates and her wish to distance herself from her utterance (Coates 1983: 236). Yet, when the speaker uses what Kissine (2014: 93) refers to as "reservation markers" (which include evidential expressions), this does not imply that she has no evidence to support her claim. Rather, it suggests that the speaker's epistemic bases are too weak for supporting the propositional content expressed. These reservation markers do not relieve the speaker from her commitment to truth but from the necessity to provide a justification if her utterance is challenged. Furthermore, if the utterance is found to be false or not evidenced enough, the penalty will be less important (Kissine 2008: 162–163).

Ifantidou's (2001) relevance-theoretic research on evidentiality construes evidentials as providing information regarding the nature of the source of knowledge as well as conveying the speaker's degree of certainty about what she communicates. One of the main functions of evidential expressions is therefore to weaken or strengthen the speaker's commitment to the truth of the propositional content (Lyons 1977: 595). According to Ifantidou (2001: 153), strong evidentials such as *obviously* and *clearly* strengthen the speaker's commitment to the proposition expressed, because they signal that there is clear evidence for *p* (Ifantidou-Trouki 1992: 194–195). Conversely, weak evidentials such as *apparently* or *I guess* are said to suspend the speaker's commitment since they indicate that there is little evidence for the proposition expressed (Ifantidou 2001: 48, 153, 156–157). However, some markers such as *I think* can have either a weakening or a strengthening function,

32 However, the results of my pre-test concerned with linguistic markers of certainty show that it is not always the case: participants often assessed utterances modified with a strong evidential as conveying equal or more certainty than categorical assertions (see study 1a in Chapter 9).

depending on the context and on the source of information. Also, consider examples (52) and (53):

(52) I think Mr Darcy is a wealthy gentleman.
(53) Mr Darcy is a wealthy gentleman, I think.

According to Ifantidou's analysis (2001), an utterance-initial parenthetical suspends the speaker's commitment as in (52) whereas an utterance-final parenthetical in (53) does not.[33] Non-commitment is possible in what Marín-Arrese (2009: 246) calls cases of "aphony". For instance, expressions like *I do not know* or *I cannot recall* are believed to express non-commitment because the speaker refuses to assign any validity to the piece of information she conveys.

Ifantidou (2001) specifically addresses evidentials in relation to commitment, which she accounts for in terms of strength (i.e. the fact that individuals entertain assumptions with lesser or greater confidence and think of them as more or less likely to be true, see Sperber and Wilson 1995: 75) and relevance.[34] Markers encoding evidential information are thought to affect the strength of communicated assumptions and, as a result, the degree of commitment to the proposition expressed by either strengthening or weakening what Ifantidou (2000: 120, 138) calls "the range of falsifying evidence". Nevertheless, in line with Blass (2000), Ifantidou (2001: 82, 153, 159) makes clear that evidential expressions contribute to explicatures since they convey information about the speaker's propositional attitude. Therefore, evidentials are, in some cases, truth-conditional: main-clause evidentials such as *clearly* and *obviously* are considered to make an essential contribution to truth

33 According to Ifantidou (2001: 156–158), *I think* (53) is an instance of "genuine parenthetical", which is construed as non-truth-conditional. The author claims that the later the position of such a parenthetical, the more it has an "afterthought interpretation". If the initial parenthetical in (52) makes a substantial contribution to the overall relevance of the utterance, the one in (53) only adjusts an already accessible interpretation.

34 The notion of strength will be addressed in greater detail in Chapter 6, as it is a central component of the model of commitment proposed in this research.

conditions, whereas truly parenthetical evidentials such as *frankly* and *seriously* are non-truth-conditional. These evidentials are deemed inessential to truth conditions, as they indicate how a given speech act is being performed, without changing its truth-conditional status. A parenthetical can alter the truth-conditional status of the assertion in two ways: it can either alter the truth-conditional status of the proposition falling within its scope (namely, when it makes an essential contribution to the truth conditions of the utterance) or influence the speaker's degree of commitment to the proposition it modifies (Ifantidou 2001: 154). In the former case, a parenthetical makes an essential contribution to the truth conditions of the utterance it modifies when it functions as a marker of interpretive use. Ifantidou (2001: 154) argues that hearsay adverbials and hearsay parentheticals (such as *allegedly*, *reportedly* and *admittedly*) are truth-conditional because they necessarily affect the truth-conditional status of propositions that fall within their scope. Consider example (54):

(54) Jane is, allegedly, a beautiful woman.

For Ifantidou, the question is whether the speaker of (54) is committed to both (55a) and (55b):

(55) a. Jane is a beautiful woman.
b. Someone alleges this.

Following Ifantidou's reasoning, the speaker is not necessarily committed to the truth of (55a) because it is interpretively used. In the latter case, parenthetical comments or sentence adverbials (like *obviously* and *apparently*) alter the speaker's degree of commitment by either reducing or increasing the range of falsifying evidence (i.e. the strength of the communicated assumptions).

An assumption with no strength, such as a groundless speculation, will not achieve relevance since it cannot modify existing assumptions either by strengthening them, contradicting and eliminating them or combining with them to yield new contextual implications. If the speaker aims at optimal relevance, she must produce an utterance she considers

relevant enough to be worth processing by her addressee: this utterance must be evidenced enough to achieve this goal. According to the relevance-guided interpretive process, the hearer recovers the speaker's intended meaning together with her intended attitude, which includes speaker commitment. This type of commitment is thus accessed via the process of enrichment, by satisfying the hearer's expectations of relevance (Ifantidou 2001: 196–197). Evidentials are thus construed as giving indications regarding higher-level explicatures (see Sections 4.2 and 6.4.1 for details), (Traugott 2003: 660).

Consequently, speaker commitment is degree-sensitive and is retrieved at the explicature level during the relevance-theoretic comprehension procedure. The first assumption that leads to an interpretation consistent with the principle of relevance is the one the hearer should choose. If no linguistic guidance is provided, the hearer will rely on pragmatic inference to recover the speaker's intended degree of commitment. Hence, the hearer's retrieval of speaker commitment is constrained by his expectation of relevance, just as the speaker's intended meaning (Ifantidou 2001).

4.3.3 Direct approaches

If the above approaches indirectly address the notion of commitment, more recent studies have provided accounts explicitly theorising commitment. Morency et al. (2008), de Saussure and Oswald (2008, 2009) as well as Moeschler (2013) account for the notion of commitment from a relevance-based perspective, although from differing points of view. Morency et al. (2008) and de Saussure and Oswald (2008, 2009) opt for an approach focusing on the hearer's perspective, whereas Moeschler (2013) offers a speaker-oriented account of commitment.

Morency et al. (2008) and de Saussure and Oswald (2008, 2009) focus on a hearer-oriented account of the notion of commitment attribution. This perspective aims to avoid the pitfalls related to the speaker-oriented notion of commitment, which is often defined in terms of truth and belief, thereby making it inscrutable. Morency et al. (2008) do not

distinguish between commitment to an illocutionary force and commitment to a propositional content (de Saussure and Oswald 2008: 475). They claim that speakers commit to mental representations such as propositional contents, intentions, representations about belief, and so on (Morency et al. 2008: 198).

According to these authors, commitment attribution is dependent on the interpretive process, as accounted for by Relevance Theory. Since speaker commitment is defined as "the speaker's endorsement of a set of representations she cannot retract because she *communicated* them" (2008: 205, emphasis in the text), then commitment assigned on the grounds of explicit contents corresponds to an assumption with a high degree of certainty. By contrast, if commitment is attributed on the grounds of implicit contents, it cannot be certain because of the extra inferential work involved in the interpretive process. The notion of commitment attribution is therefore graded: it is considered to be stronger in the case of explicatures than in the case of implicatures. Although this proposal does not envisage the possibility of non-commitment, the speaker can deny having communicated an assumption in the case of implicatures. As highlighted earlier, the more poetic the effect, the more creative the metaphor or ironic the utterance, the greater the hearer's responsibility for his own interpretation (Sperber and Wilson 1995: 236; Blakemore 1992: 171). However, strong implicatures (i.e. those which would trigger a loss of relevance if they are not processed, as in examples (41) and (42) above) can be considered to commit the speaker (de Saussure and Oswald 2009: 28). If the speaker aims at optimal relevance, she will leave implicit all that the hearer can infer without too much effort (Sperber and Wilson 1995: 218).

In the case of reported speech, Morency et al. (2008: 209) do not distinguish between direct and indirect discourses when they are faithfully reported. Taking for granted that the reporting speaker is cooperative and if the explicatures derivable from the reported proposition sufficiently resemble those derivable from the original speaker's utterance, the hearer can attribute commitment to her. One can thus attribute commitment to the original speaker via the reporting speaker's interpretation of her actual utterance, as long as the report is faithful and

the speaker cooperative. However, there is no way of safely attributing commitment in this configuration since the process involves an additional constraint, that is, the hearer's degree of trust in the reporting speaker (Morency et al. 2008: 215).

From a speaker-oriented perspective, Moeschler (2013) suggests that the nature of the information conveyed determines speaker commitment to varying degrees. Entailments and presuppositions, which are of a semantic nature, convey stronger commitment than explicatures and implicatures, which are of a pragmatic nature. Moeschler (2013: 87) argues that the speaker cannot deny having communicated a semantic inference without triggering a logical inconsistency. Yet, she can respectively correct explicatures or refuse the implicatures derived by the hearer without any contradiction. Contrary to Morency et al. (2008), Moeschler also applies denial to explicatures. In this view, the degree of speaker commitment is tantamount to the nature of inferences triggered by the utterance.

Moeschler links commitment to the strength of an assumption in the speaker's cognitive environment, which means that he sees this notion a continuum. He presents two types of strength. The first one is derived from the functional view (see Section 6.4.2) and is advocated by Sperber and Wilson (1995): it construes strength in terms of the accessibility of assumptions (henceforth "strength 1"). Moeschler (2013) also puts forward a hierarchy of semantic and pragmatic relations (henceforth "strength 2", see the hierarchy proposed in (56) below). He shows that one option for a cognitive pragmatic approach such as Relevance Theory is to construe strength as a function of the relative salience of an assumption in the cognitive environment, and hence of its accessibility. According to this view, the notion of commitment is construed as a property of each assumption and is a function of the internal structure of the cognitive environment.[35]

35 The structure of the cognitive environment is not fixed but always dynamically redefined by the context.

Even though Moeschler (2013: 96) seems to favour the second interpretation of the notion of strength (strength 2), he does not completely rule out his first hypothesis and suggests that strength 1 combines with strength 2. Nevertheless, the combination of these two types of strength – and hence of commitments – does not allow one to make clear predictions about inferred assumptions to which the speaker can be considered to be strongly or weakly committed. For instance, assumptions resulting from entailments and presuppositions are both less accessible (strength 1) and stronger (strength 2), whereas pragmatically inferred assumptions such as explicatures and implicatures are both more accessible (strength 1) and weaker (strength 2), (Moeschler 2013: 96).

Moeschler (2013) suggests that, on the basis of utterance truth conditions as well as of the entailments, presuppositions, explicatures and implicatures an utterance triggers, there is a commitment hierarchy regarding the different types of assumptions:

(56) entailments > presuppositions > explicatures > implicatures

In other words, the degree of speaker commitment corresponds to the nature of inferences triggered by the utterance.[36] Moeschler highlights that strength 2 is likely to interact with other parameters to determine speaker commitment. Ironic utterances seem to provide a good example of interaction between these parameters. Contrary to the metalinguistic negation described by Moeschler in (57), the irony in (58) does not require any corrective utterance to cancel the presuppositions:

(57) The king of France is not bald, because there is no king of France.
(58) The king of France is bald, of course!

In (58), the speaker does not commit to the existence of a king of France. It seems then that irony allows an implicature to determine the strength of an inferred assumption at the cost of the presuppositions triggered by

36 The more semantic the relation, the stronger speaker commitment and the more pragmatic the relation, the weaker speaker commitment.

the semantic meaning of the utterance. This allows to cast doubt on the hierarchy defined in (56), (see Boulat and Maillat 2017).

Strength 1, based on accessibility, also seems to be exposed to effects triggered by the interaction between different parameters. Therefore, commitment attribution to the speaker based on the proposition expressed by the clause in (60) will likely be stronger than in (59).

(59) A neighbour has just told me that I was ill.
(60) A doctor has just told me that I was ill.

However, if we imagine a scenario in which no contextual information exists in the hearer's cognitive environment regarding the neighbour or the doctor, the degree of accessibility in (59) should be equivalent to the one in (60).

Although Moeschler (2013) argues for a speaker-based pragmatic account of commitment, it seems that his perspective also takes into consideration the addressee, as the nature of inferences are derived by the hearer. In my opinion, Morency et al.'s (2008), de Saussure and Oswald's (2008; 2009) and Moeschler's (2013) accounts do not crucially differ but are rather complementary since they point to the conclusion that the nature of the hearer's inference determines his degree (and the safety) of commitment attribution.

4.4 Conclusion

This chapter surveyed the basic tenets of Relevance Theory as well as different approaches to commitment. Except for Morency et al.'s (2008), de Saussure and Oswald's (2008; 2009) as well as Moeschler's (2013) explicit accounts of commitment attribution and speaker commitment, this notion is indirectly referred to within relevance-theoretic studies dedicated to assertion, epistemic modality and evidentiality.

Relevance Theory construes descriptive representations as committing the speaker to the truth of the proposition expressed by her

utterance, whereas their interpretive counterparts do not. According to Jary (2011), the speaker only undertakes assertoric responsibility for the content she expresses when she presents it as "relevant in its own right", that is, as a categorical assertion. Consequently, if the speaker decides to modify her utterance with an epistemic modal or an evidential expression, such assertoric responsibility does not follow and she is only committed to the fact that she *thinks*/ *believes*/ *guesses that p*.

Works devoted to epistemic modality and evidentiality do not generally share this assumption. According to the studies mentioned above, when the speaker includes an epistemic modal or an evidential expression in her utterance, she indicates that she commits to the content she expresses to a certain extent. The extent to which she does depends on the linguistic marker she uses.

Relevance-theoretic accounts of epistemic modality and evidentiality consider that the notion of commitment is part of the speaker's propositional attitude towards what she communicates, which is retrieved at the explicature level. Commitment is thus interpreted as contributing to the propositional content. The hearer's retrieval of speaker commitment is constrained by his expectation of relevance, just as the speaker's intended meaning.

Ifantidou (2000; 2001) and Moeschler (2013) account for commitment in terms of strength, which brings us back to a cognitive and psychological view of commitment. Indeed, Relevance Theory conceives of interpretation as inferences about the speaker's intentions (i.e. her private mental states) that may be communicated via propositional attitude markers, for instance.

However, Morency et al. (2008) as well as de Saussure and Oswald (2008; 2009) operate a change of focus. The speaker-oriented notion of commitment is replaced by commitment attribution, which is hearer-oriented, to avoid definitions in terms of truth and belief.

In the relevance-theoretic framework, who is committed is not even an issue: the speaker is. She is usually considered to be committed to the truth of her utterance. Some authors have argued that she is committed to what she has communicated, to explicit contents (Morency et al. 2008) or to the entailments and presuppositions of an utterance

(Moeschler 2013). Broadly speaking, the speaker is considered to be committed to assumptions in her cognitive environment.

Non-commitment seems to be an option in certain cases (i.e. what Marín-Arrese (2009) calls cases of "aphony") and commitment withdrawal or retraction is possible in others (Morency et al. 2008).

Commitment is conceived of as a graded notion in studies on epistemic modality and evidentiality: the speaker can be strongly or weakly committed to what she communicates. Morency et al.'s (2008) processes of commitment attribution are also graded: the more explicitly communicated the content, the safer the hearer's commitment attribution is believed to be.

Relevance Theory offers an interesting framework to account for the concept of commitment, which is often linked to assertions, epistemic modals and evidential expressions. A few authors suggested a change of perspective and decided to focus on the hearer's side of communication. Furthermore, the relevance-theoretic concept of strength was mentioned in one of the explicit accounts of commitment surveyed above. The linguistic markers presented in this chapter, the hearer-oriented perspective and the notion of strength will be the foundations of the model of commitment presented in Chapter 6.

The next chapter offers a brief summary of the study of commitment in the linguistic literature. It highlights what still has to be addressed and puts forward the need for a unified account of commitment which takes into account both the speaker's and the hearer's perspective, as well as the communicated content and its corresponding assumptions in the hearer's cognitive environment.

5 Commitment in linguistics: A summary

5.1 Literature on commitment

Even though it has hardly ever been researched in modern pragmatics, commitment is at the heart of very different linguistic theories. The four first chapters of this proposal showed that when it is, commitment is far from being heterogeneously referred to or accounted for.

Again, commitment has been the subject of many discussions over the past forty years. Still, no consensus among researchers is in sight. This notion only acquires a specific, operational meaning in Enunciation Theory as well as in studies on Linguistic Polyphony. Within these domains, definitions of endorsement and responsibility include one or more of the following concepts: truth, source, enunciation, assertion, modality and responsibility. From this literature review, it is clear that definitions of commitment in linguistics are scarce and often left to be inferred by the reader. Also, the definitional issue of commitment is not restricted to Enunciation Theory and Linguistic Polyphony: it extends to the other linguistic frameworks surveyed above.

Even though many differences exist, the accounts of commitment previously surveyed share similarities. Most of the researchers construe commitment as a purely public and dialogical phenomenon, yet it is also often presented under a psychological light, which crucially includes mental states such as beliefs. The debate, in terms of definition, between what is believed to be true and what is publicly presented (as being believed to be true) for the sake of the dialogue or of the argument, is pervasive in almost every approach. It appears then that a unique concept for such different instances of commitment is too restrictive and does not allow to fully account for the variety of phenomena which fall within its scope.

Furthermore, except from marginal references in Speech Act Theory, in studies on dialogue and argumentation and in explicit proposals such as Morency et al.'s (2008) as well as de Saussure and Oswald's (2008; 2009), the accounts surveyed above are mainly speaker-oriented.

Finally, the assertion is generally construed as the linguistic phenomenon which best expresses speaker commitment. However, modalized utterances are also believed to commit the speaker, but only to a certain extent. In this view, the speaker's degree of commitment is determined by the type of linguistic marker used.

5.2 Remaining questions

References to endorsement and responsibility in Enunciation Theory and Linguistic Polyphony raise crucial questions a model of commitment should take into consideration and make explicit: who is committed and what is one committed to? Is it possible to avoid undertaking commitment when one produces an utterance and is commitment a graded notion?

Hitherto, we have seen that enunciative and polyphonic approaches view the utterances as a layering of different voices. A fictional entity (which is not always equated with the speaker) is committed to what is communicated (e.g. the locutor in Enunciation Theory and the source of a given point of view for the ScaPoLine). Yet, all the other approaches surveyed earlier take for granted that the speaker is committed by her utterance to various objects, a view defended by de Saussure's (2010) metarepresentational analysis of polyphonic phenomena. Speech Act Theory as well as studies on dialogue and argumentation acknowledge, when considering questions, that commitment can be transferred from speaker to hearer.

The various accounts of commitment reviewed earlier suggest different types of objects a speaker can be committed to: mental states, utterances, propositional contents, speech acts, points of view or argumentative orientations, to name just a few.

The speaker is generally thought to be committed by her speech production only or as soon as she produces an assertion. Yet, we also know the degree of speaker commitment can reach zero (Searle 1979), commitment to truth can be cancelled (Kissine 2013), and retracted (Hamblin 1970; Walton 2008a) or even suspended in certain cases (Malamud and Stephenson 2015). In Enunciation Theory and Relevance Theory, non-commitment seems to be an option, when the speaker indicates that she refuses to assign any validity to the piece of information she conveys or when she produces a metalinguistic negation, for instance (Marín-Arrese 2009; Moeschler 2013).

Finally, the notion of commitment is frequently construed as a graded notion: a speaker is said to be more or less committed to what she communicates. However, the opposite view also exists, where commitment is a dichotomous notion.

5.3 The need for a unified account of commitment

Building on the preceding discussion, I would like to set theoretical goals for a linguistic account of commitment phenomena. Such an account should take into consideration both the speaker's and the hearer's perspective. Besides, it should provide clear definitions which would address its linguistic and cognitive aspects. By taking into account both the linguistic marking of commitment and its mental representations, it should be possible to reconcile the public and private aspects of commitment.

Also, different kinds of commitment need to be distinguished: commitments which can be attributed to the speaker and ones that can be ascribed to the hearer; as well as private and public commitments. The four questions raised within the fields of Enunciation Theory and Linguistic Polyphony must also be addressed.

Moreover, the notion of strength, referred to in Speech Act Theory and as presented by Sperber and Wilson (1995), Ifantidou (2001) and

Moeschler (2013), is a very interesting theoretical option, which sheds light on the definition of commitment. A possible direction to improve the predictive power of a model of commitment would be to identify the different parameters which determine the degree of commitment attributed to the speaker, and hence the degree of strength of the corresponding contextual assumptions in the hearer's cognitive environment.

In what follows, I propose an original model of commitment based on the relevance-theoretic notion of strength, which borrows from studies on epistemic vigilance (Mascaro and Sperber 2009; Sperber et al. 2010).

Part II A new take on commitment

6 Modelling commitment

6.1 Introduction

In the previous chapters, we saw that the notion of commitment is widely and diversely referred to in many fields of enquiry. Yet, if it is frequently used in linguistics, it has aften been theoretically neglected. The survey presented earlier indicates that an account of commitment needs to take into consideration the following points: the definition of commitment, the subject who is said to be committed, the content one is said to be committed to, the possibility of non-commitment as well as the graded or dichotomous nature of commitment. Any claims about a cognitive account of commitment would undoubtedly benefit from empirical evidence. In what follows, a model of commitment is put forward.

The main objective of this model is to define further the scope of a pragmatic and cognitive approach of commitment, from a typological as well as a descriptive perspective. This chapter provides a unified and empirically verifiable model of commitment by offering a new perspective on information integration, which takes into account both the speaker's and the hearer's point of view. To do so, I propose a relevance-based approach of the notion of commitment, borrowing from studies on epistemic vigilance (Mascaro and Sperber 2009; Sperber et al. 2010).

I start this chapter by presenting a hearer-oriented account of commitment, which focuses on explicatures. Then, I sketch out my reasons to ground this model within a relevance-theoretic framework, as this account heavily relies on the notions of higher-level explicatures and of cognitive strength. Finally, after a brief survey of the basic tenets of studies on epistemic vigilance, I will present my typology of commitment.

6.2 A hearer-oriented approach

This chapter offers an account of commitment focusing on commitment assignment processes in a hearer-oriented perspective. In line with Morency et al. (2008) and de Saussure and Oswald (2008; 2009), I suggest that we should consider interpreted utterances, which are arguably more directly susceptible to experimental observation. Even though utterances do not always represent the speaker's actual commitment, they allow the hearer to reconstruct what the speaker presented as her intended commitment.

In what follows, I will argue for a development of Morency et al.'s (2008) proposal by defining commitment attribution and investigating its impact on information integration in the hearer's cognitive environment. One of the goals of this chapter is thus to explain how hearer-oriented processes of commitment assignment influence the way individuals store assumptions in their cognitive environment as well as their retrieval process.

6.3 Focusing on explicatures: A graded conception

In line with linguists who locate commitment at the higher-order explicature level (Ifantidou 2001, 2014; Papafragou 2006; Morency et al. 2008; Moeschler 2013), commitment is seen as the output of explicatures. It is thus construed as a combination of both coded and contextually inferred information.

Before moving on to my proposal, let me come back to Morency et al.'s (2008) as well as Jary's (2011) accounts. Recall that, according to Jary (2011: 283–284), when the speaker utters (61), she is committed to the higher-order proposition expressed in the main clause:

(61) I think I saw John today.

In (61), the speaker is highly committed to the fact that *she thinks* she saw John. Yet, she is not considered to be committed to a lesser extent to the fact that *she saw John*.

Similarly, Morency et al. (2008) argue that explicitly communicated information cannot be retracted and that the hearer can safely attribute a full commitment to the speaker on these grounds. This account of commitment attribution sheds light on the hearer's assessment of his own interpretive process, as he is predicted to assign the speaker full commitment in the case of explicatures. Thus, as Jary (2011), Morency et al. (2008) do not seem to conceive of explicatures as degree-sensitive in terms of commitment. The hearer would always attribute a maximal commitment to the speaker when she communicates an explicit content *p* because she explicitly communicated *p*. Consider the following example:

(62) I guess Elizabeth is proud.

On Morency et al.'s (2008) and Jary's (2011) analyses, the hearer would attribute a strong commitment to the speaker as shown in (62'):

(62') The speaker is highly committed to the fact that she guesses that Elizabeth is proud.

However, have a look at examples (63) to (66):

(63) Jane is married.
(64) I am sure that Jane is married.
(65) I guess Jane is married.
(66) I don't know if Jane is married.

There is a difference in terms of commitment between the four utterances (63)-(66), as far as the propositional attitude markers are concerned. This difference could be represented as follows, where 4 would convey the maximal degree of commitment and 1 non-commitment:

(63') [Jane is married] ^{4}
(64') [Jane is married] ^{3}
(65') [Jane is married] ^{2}
(66') [Jane is married] ^{1}

Here, commitment markers (such as epistemic modals or evidential expressions) modify the propositional content as they convey a lower or higher degree of certainty and reliability. By uttering (65), the speaker presents the piece of information *Jane is married* as weakly ascertained by using the propositional attitude marker *I guess*. This marker alters the degree of commitment that falls within its scope by affecting the strength of the communicated assumptions (Ifantidou 2000: 138, see Section 6.4.2). Note that in example (66), the speaker conveys non-commitment because she communicates that she does not possess the piece of information *Jane is married* in her cognitive environment at the moment of utterance production.

In line with Morency et al. (2008) and Jary (2011), I acknowledge that the speaker is indeed accountable for having communicated a content, following the contractual vision we found in Speech Act Theory and in the studies on dialogue and argumentation, where the speaker needs to act consistently after having produced an utterance. Yet, I would suggest calling this compulsory step "responsibility" and save the term "commitment" for the degree-sensitive notion linked to strength.

In this research, commitment is therefore construed as graded: a speaker is more or less committed to what she communicates. This variation in commitment can be expressed via markers that assign degrees of certainty to the piece of information conveyed and reliability to its source. Conversely, a hearer may attribute more or less commitment as a function of the degree of certainty of the communicated content and of the source's reliability, based on his interpretation of the speaker's utterance (as in (63')-(66')).

6.4 A relevance-theoretic perspective

As highlighted in Chapter 4, Relevance Theory is an inferential, information-oriented cognitive account of communication. It postulates that human beings are designed to add "more information, information

that is more accurate, more easily retrievable, and more developed in areas of greater concern to the individual" (Sperber and Wilson 1995: 47). Then, the main reason human beings have for communicating is to modify and extend their cognitive environment. Accuracy is one of the key dimensions that makes a piece of information more relevant to an individual. As a result, the need for human beings to access relevant information, that is, accurate information, crucially depends on their ability to filter out misinformation and integrate information as safely as possible in their cognitive environment (Sperber et al. 2010).

Hearer-oriented processes of commitment assignment are construed as rooted in the relevance-guided comprehension procedure (Ifantidou 2001: 196–197; Morency et al. 2008; de Saussure and Oswald 2008; 2009; Moeschler 2013) and take as input the speaker's utterances. The hearer recovers the speaker's intended interpretation together with her intended attitude through a process of inferential enrichment that satisfies her expectation of relevance (Wilson 1994; Sperber and Wilson 1995; Ifantidou 2001).

One aspect of the relevance-guided comprehension procedure specifically targets commitment as the hearer derives the most accessible satisfactory assumptions about the speaker's commitment, based on the information conveyed by commitment markers in the utterance. The resulting assumptions constitute the input the hearer uses in the processes that govern commitment assignment. Commitment is therefore assumed to be the output of explicatures that metarepresent the relative certainty and reliability of the piece of information conveyed by the utterance, both in the hearer's representation of the speaker's cognitive environment and in the hearer's own cognitive environment. Also, the processes of commitment assignment are constrained by the hearer's expectation of relevance as well as by the demands of his epistemic vigilance mechanisms (see Section 6.5).

As discussed in Chapter 4, even though some relevance-theoretic researchers indirectly or directly address the notion of commitment, Relevance Theory, as developed by Sperber and Wilson (1995), does not explicitly do so. Yet, I argue that commitment is crucially linked to relevance-theoretic notions including higher-level explicatures and the strength of assumptions.

6.4.1 Higher-level explicatures

As briefly mentioned earlier, Relevance Theory considers two types of explicatures: first-order explicatures and higher-level explicatures. First-order explicatures are the result of a first type of enrichment process (such as disambiguation, reference assignments, restoration of elided material, and so on). They take the primary proposition explicitly communicated by the utterance as input and are recovered by a combination of decoding and inference (Ifantidou 2000: 128). First-order explicatures are traditionally seen as truth-conditional and conceived of as the proposition expressed, which "is the basic assumption to which the speaker may be expressing an attitude" (Iten 2005: 83).

A second type of comprehension process consists in embedding the proposition expressed under a higher-level description such as a speech-act, a propositional attitude description or some other comments on the embedded proposition. The result is the speaker's intended epistemic stance, her attitude towards the proposition expressed, her emotion towards the content of the utterance or the kind of speech act she wanted to perform (Wilson and Sperber 1993; Ifantidou 2001; Carston 2002; Iten 2005; Wilson 2012; Clark 2013). The content of a higher-level representation is partly determined by contextual information. Writing about illocutionary-force indicators in *Linguistic form and relevance*, Wilson and Sperber (2012: 167) claim that they encode procedural constraints on the inferential construction of higher-level explicatures. This also applies to propositional attitude descriptions.

Higher-level explicatures capture the idea that verbal communication is not only about conveying information, but also about expressing an attitude towards the communicated content (Andersen and Fretheim 2000: 3). For Sperber and Wilson (1995: 10–11), the speaker's utterance reveals her attitude – including propositional attitudes, speech-acts or illocutionary forces – to the thought it represents. Indeed, the process of utterance comprehension involves recovering the intended content of the utterance as well as retrieving the speaker's intended attitude to the piece of information she communicates (Wilson 1994: 46; Sperber and Wilson 1995: 180).

The speaker's stance towards the content she expresses is subsumed in Relevance Theory under the label of propositional attitude, an aspect of meaning often related to the linguistic domains of modality and evidentiality (Ahern 2010: 147). Pragmatic markers expressing propositional attitudes are believed to be computed at the level of explicatures (Andersen and Fretheim 2000: 7; Blass 2000; Ifantidou 2001: 196–197; Moeschler 2013). The notion of speaker's attitude towards her utterance is therefore crucial to the interpretive process as construed by Relevance Theory. In fact, the main relevance of an utterance may lie in the speaker's attitude (Blakemore 1992: 61).

However, just like explicatures, many higher-level explicatures can be communicated without being necessarily represented in the hearer's cognitive environment. Even though the speaker may have made her intention mutually manifest, the hearer may only represent the one he derived, which triggers cognitive effects.

Verbal communication is successful when the speaker's intended meaning and attitude towards what she communicated are identified. According to Ahern (2010: 147), to accurately retrieve the speaker's propositional attitude is a key component in utterance interpretation, since intention recognition is partly grounded on the attitude the hearer attributes to the speaker. Not only do propositional attitudes contribute to utterance comprehension, but they also give indications regarding information processing. Since it seems we classify our mental representations according to their truth or degree of probability, indications regarding propositional attitude information "will strongly influence our own acceptance of that content as a reality, and thereby, the possibility that its interpretation may influence our actions" (Ahern 2010: 147–148).

The content of higher-level explicatures is usually considered to belong to the three main categories of emotions, speech acts and epistemic stance (such as, for instance, beliefs, doubt, surprise, incredulity, and so on), (Ahern 2010: 153). Higher-level explicatures provide crucial information regarding the communicator's intentions and about her attitude towards the communicated content. Ahern (2010: 164) distinguishes between two types of propositional attitude

information: emotional attitudinal information and epistemic information, which includes epistemic commitment (Andersen and Fretheim 2000: 8). In this view, epistemic modals and evidentials communicate the speaker's attitude towards her utterance, that is, her commitment.

The speaker can choose among various linguistic means to communicate propositional attitude information, including prosody, interjections, mood indicators, discourse markers and evidential particles (Ahern 2010: 152). The hearer then takes these linguistic markers as cues to identify the speaker's communicated attitude towards the proposition expressed, but he will most certainly use prosodic features and facial expressions as well. According to a study conducted by Premack and Premack (2003), the latter type of information will be likely to always override the encoded meaning of the words used in the utterance (Ahern 2010: 151–152).

What is crucial for our discussion is that the attitude encoded by evidential or discourse markers (which are thought to convey attitudinal or speech act information) is about communicating the speaker's degree of commitment. Ifantidou (2001: 19) claims that

> utterance comprehension involves the formation and evaluation of hypotheses about the speaker's intended interpretation, i.e. the intended combination of contextual assumptions, propositions expressed and implied, and attitudinal or speech-act information. Evidential utterances typically communicate attitudinal or speech-act information – about degree of speaker commitment or source of information – which may be either linguistically encoded or pragmatically inferred.

Explicitly communicated contents, embedded under such propositional attitude or speech act descriptions, are thus traditionally seen as providing information about speaker commitment. From this perspective, since all utterances communicate at least one higher-level explicature of this kind (Ifantidou 2000: 128; Clark 2013: 209), all utterances are assumed to communicate speaker commitment (or non-commitment).

Urmson (1952, quoted by Ahern 2010) suggests that the role of a propositional attitude expression is to modify or weaken the claim to truth implied by a categorical assertion. However, Ahern (2010: 152) argues that propositional attitudes influence our acceptance of the

communicated piece of information and, consequently, our actions. Propositional attitudes are believed to affect the way the hearer integrates newly presented information in his cognitive environment. Hence, Ahern (2010) highlights the interaction between propositional attitudes and epistemic vigilance mechanisms, which will be discussed in detail below (see Section 6.5.4).

Building upon this literature, I posit that higher-level explicatures are the locus of commitment (echoing in part Katriel and Dascal's (1989) proposal) and that they are the basis of hearer-oriented processes of commitment assignment. Epistemic modals as well as evidential expressions give rise to assumptions regarding the degree of certainty conveyed by the utterance and of its source's reliability, through the retrieval of higher-level explicatures. Crucially, this retrieval is thought to affect the strength of the assumptions communicated by the speaker's utterance, in the hearer's cognitive environment.

6.4.2 Strength of assumptions

In Speech Act Theory, different speech acts, which correspond to different mental states, are thought to express various degrees of strength. For instance, a testimony is considered to be stronger than a speculation. The strength of two speech acts can only be compared if they share the same illocutionary point. Linguistic expressions (such as illocutionary force indicators) give information about how an utterance is to be understood and may have either a strengthening or a weakening function.

Relevance Theory applies the concept of strength to all assumptions in our cognitive environment. The speaker can express a propositional content with more or less confidence or convey that the piece of information she provides is more or less probable. In fact, most of our assumptions are believed to be tentatively entertained to varying degrees (Clark 2013: 114). This is what Sperber and Wilson (1995: 75) refer to as the strength of an assumption, defined as the confidence with which it is held and as the result of its processing history (Sperber and Wilson 1987: 701). Strength is construed as a "variable certainty", the "degree

to which [a thought] is held to be true by the thinker" (Fabb 2002: 62) or the extent to which the individual believes in the adequacy of the representation (Klinge 1993: 326). Papafragou (2000a: 70) defines strength as

> the cognitive counterpart of the philosophical notion of subjective probability: i.e. a non-representational property which captures the degree of confirmation/support assigned to any given stored assumption and is determined by the assumption's initial formation and subsequent involvement in various cognitive processes.

Strength is therefore a property of assumptions – and not of utterances – in an individual's cognitive environment. According to Ifantidou (2000: 139), degrees of strength are tantamount to degrees of commitment.

Sperber and Wilson (1995) choose to account for the notion of strength from the functional perspective, rejecting the logical view. The logical view describes the ability to judge an assumption as more or less likely to be true in terms of a system which assigns subjective probability values to representations. In this view, every factual assumption consists of two representations: the representation of the communicated state of affairs and the representation of its confirmation value (between 0 and 1). These assumptions may vary in strength and these variations are thought to be the output of a dedicated logical computation. The soundness of the individuals' assumptions depends on their ability to carry out a computational check on the confirmation value of each assumption (Sperber and Wilson 1995: 76–78). Take the following example:

(67) Jane likes Swiss chocolate.

The assumption triggered by this utterance is assigned a strong confirmation value. Of course, it can be strengthened or lowered by different factors such as its source of information (for instance, if it is uttered by Jane's sister or by one of her friends), or linguistic markers (e.g. *John told me Jane liked Swiss chocolate*; *Jane should like chocolate*, and so on). In other words, the force of confirmation is based on linguistic markers and on a set of contextual assumptions.

In the functional view though, the ability to judge an assumption as more or less likely to be true is explained in terms of a non-logical property of assumptions, i.e. their strength. A factual assumption only consists of a single representation. The strength of an assumption is a result of its processing history and is comparable to its accessibility, which is defined by Carston (2002: 376) as the

> ease or difficulty with which an assumption can be retrieved (from memory) or constructed (on the basis of the clues in the stimulus currently being processed); accessibility is a matter of degree and in a constant state of flux depending on, among other things, what is occupying attention at any given moment.

According to Sperber and Wilson (1995: 76), we do not need to represent the confirmation value of assumptions. We have intuitions about their accessibility as we take for granted that there is a good match between the strength of our assumptions and the likelihood that they are true. Strength is dependent on the way an assumption is acquired: an individual's degree of confidence in one assumption will be affected by its source and subsequent processing history (Sperber and Wilson 1995: 117). For instance, if an assumption is based on clear perceptual evidence, it tends to be entertained with the greatest strength. Yet, if it is based on the acceptance of someone's testimony, the strength of the assumption will correspond to the hearer's confidence in the speaker. Finally, if it is based on inference or deduction, its strength will depend on the strength of the premises from which it is derived (Sperber and Wilson 1995: 77). Thus, the degree of strength of an assumption can be placed on a continuum ranging from weak (i.e. poorly confirmed) to certain (i.e. true).

If, on the logical view, the representation of the degree of confirmation of an assumption is an aspect of this same assumption, on the functional view, it is another assumption which is "generally the by-product of an intuition about one of the effects of the processing history of that assumption" (Sperber and Wilson 1995: 78–79). Judgment and comparison of strength are thus construed as "introspective intuitions" (1995: 80) rather than quantitative assessments. Sperber and Wilson (1995: 79) conclude that assumptions can be entertained without their

degree of confirmation ever being represented. In this view, strength is not construed as a quantitative value but as a comparative notion.

Relevance Theory defines strength as a non-logical property of assumptions which captures the degree of confidence assigned to any given assumption in a cognitive environment. It is calculated on the basis of greater or lesser amount of evidence. Each assumption in a cognitive environment is assigned a degree of strength, which is comparable to its relative accessibility. Strength structures our cognitive environment, which is not fixed but constantly dynamically redefined in context. A more accessible assumption is one that is easier to recall: in other words, the stronger the assumption, the greater its accessibility. Conversely, the weaker the assumption, the less accessible it will be. Consider Sperber and Wilson's (1995: 77) examples reproduced in (68) and (69):

(68) Cairo is the present capital of Egypt.
(69) Thebes was the capital of Egypt under the 20th dynasty.

Both (68) and (69) are descriptions of true states of affairs, however (68) is more accessible than (69) and therefore, stronger.

The notion of strength is explicitly linked to cognitive effects: a piece of information may strengthen or weaken an already held assumption (Sperber and Wilson 1995: 77). As communicators, we want to improve our representation of the world not only by adding new assumptions to our cognitive environment, but also by strengthening or weakening already held assumptions, by "appropriately raising or lowering our degree of confidence in them, the degree to which we take them to be confirmed" (Sperber and Wilson 1995: 76–77). Thus, an assumption with no strength cannot be relevant since it cannot achieve contextual effects. As Klinge (1993: 327) puts it, an unverified and unasserted representation is construed as the speaker's lack of full cognitive access to an expressed state of affairs. Consequently, the notion of strength is crucial when two assumptions contradict each other. If the hearer is able to compare their strength and one assumption is found to be stronger than the other, then the weakest assumption is likely to be erased and to be replaced by the strongest.

Previously, we saw that Ifantidou (2001) and Moeschler (2013) both highlight the cognitive nature of commitment by accounting for speaker commitment in terms of strength. Moeschler's account refers to two different types of strength: strength 1, described by Sperber and Wilson (1987; 1995), which corresponds to the accessibility of assumptions, and strength 2, linked to speaker commitment, which Moeschler (2013) illustrates as a hierarchy of semantic and pragmatic relations.[37]

From a relevance-theoretic perspective, Ifantidou (2001) also accounts for evidentials in terms of strength. When the speaker uses an evidential marker in her utterance, it affects the strength of her communicated assumption and hence, her degree of commitment to the proposition expressed, since such markers may either reduce or enhance "the range of falsifying evidence" (Ifantidou 2000: 138) for a given utterance. In line with Klinge (1993), Ifantidou argues that an assumption with no strength cannot achieve relevance. Therefore, if the speaker aims at optimal relevance, she must produce an utterance strong enough (i.e. evidenced enough) to deserve her addressee's processing effort. Consider examples (70) and (71):

(70) I guess Jane is writing a new novel.
(71) I am sure that Jane is writing a new novel.

As discussed in Section 6.3, we can represent (70) and (71) as follows:

(70') [Jane is writing a new novel] ^{2}
(71') [Jane is writing a new novel] ^{3}

In this view and in line with the functional view, the notion of strength is relative since the strength of the assumption in (70') can be compared to the strength of the assumption in (71'). Yet, because the assumption can be assigned different degrees of strength based on linguistic markers and

37 As a reminder, Moeschler's (2013) account suggests an interaction between strength 1 (i.e. accessibility) and strength 2 (his commitment continuum). Assumptions resulting from entailments and presuppositions are both less accessible and stronger (in terms of commitment), whereas pragmatically inferred assumptions are more accessible, but weaker.

contextual assumptions, it is also graded. We can say that (71') is stronger than (70'). Contrary to the logical view though, this proposal does not presuppose a dedicated logical computation or a double representation.[38]

The speaker has the possibility to communicate a content with more or less confidence or convey that the piece of information she expresses is more or less probable. To do so, she may use certainty or reliability markers (i.e. commitment markers). From the hearer's perspective now, the model of commitment presented in this research suggests that if the hearer deems the piece of information to be certain and the speaker to be reliable, the corresponding assumptions will be assigned a high degree of strength and will be more accessible thereafter in his cognitive environment.

According to this model of commitment, degrees of certainty and reliability are represented in the hearer's cognitive environment through the derivation of higher-level explicatures which convey, among other things, propositional attitudes. From this perspective, commitment depends on the certainty of the communicated information and on its source's reliability. Commitment is then cognitively translated into the hearer's cognitive environment as degrees of strength. Thus, strength is construed as the cognitive counterpart of commitment, and is considered to be (at least in part) a function of both certainty and reliability.

While certainty corresponds to the speaker's subjective appraisal of the epistemic status of the communicated state of affairs, reliability usually refers to both the soundness of the information in terms of evidence and to the speaker's competence and benevolence. Schenner (2010: 156–160) argues that "subjective probability" (i.e. what is called here "certainty") relates an individual to some piece of information, whereas "reliability" links an individual to a source type. According to him, subjective probability and reliability are interconnected since a piece of information is likely to have a high degree of subjective probability if it provided by a reliable source type.

In the present model of commitment, certainty is about the content, i.e. the communicated piece of information. A communicated

38 That is, the assumption and its confirmation value.

content can be intrinsically believable or unbelievable.[39] Yet, most of the time the speaker presents a content as more or less certain by means of linguistic markers such as categorical assertions, epistemic modals or evidential expressions so that the hearer might end up accepting it (Papafragou 2000a/b; Ifantidou 2001; Hart 2011; Marín-Arrese 2011; Oswald 2011; de Saussure 2011; Wilson 2012). Linguistic markers of certainty are thought to have either a strengthening or a weakening function (Ifantidou 2001: 153). They are taken as cues by the hearer and help him assign a degree of strength to assumptions conveyed by the utterance. Even though Aikhenvald (2004: 186) claims that evidentials "are not part of linguistic encoding of probability and possibility (or "epistemic modalities" which reflect the degree of certainty the speaker has)", it is posited, in accordance with Ifantidou's taxonomy of evidentials (2001: 5−8), that some parentheticals (e.g. *I think*, *I know*) and adverbials (e.g. *probably*, *certainly*) do express or contribute to the speaker's certainty about the piece of information she conveys. In the same vein, Carston (2002: 121) claims that

> evidentials comment on what the speaker sees as the degree of evidential support for the proposition expressed, which may in turn affect the degree of conviction she represents herself as having in the truth of the proposition expressed (that is, the propositional attitude explicatures).

Further (2002: 128), she argues that such parentheticals modulate the higher-level explicatures of an utterance, weakening or strengthening what she calls the speaker's communicated "degree of conviction" in the proposition expressed. The linguistic markers mentioned above are therefore considered to influence the interpretive process and are crucial in the hearer's decision to integrate the communicated information in his cognitive environment (see discussion in Section 7.2). However, if the certainty of the communicated piece of information is often linguistically marked, it can also be pragmatically inferred.[40]

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39 For instance, in the case of tautologies or logical contradictions, see Sperber et al. (2010).

40 Take, for example, the cases of intonation or of behavioural cues such as body language.

Reliability is about the speaker's and/or reported speaker's reputation and her access to evidence. According to Sperber et al. (2010), a speaker's and/or a reported speaker's reliability is defined in terms of competence (i.e. the fact that she possesses genuine information, for instance that she is an expert on the topic under discussion) and benevolence (i.e. the fact that she wants to share the genuine piece of information she has with her addressee). Beyond conveying overall impression of competence and benevolence (which are mainly contextually inferred), the speaker may also linguistically provide her addressee with information qualifying her own competence and benevolence, as in (72) and (73):

(72) This plant has medicinal virtues: I studied natural sciences.
(73) Mr Bingley is a bachelor and when he meets you, he will want to marry you. You know you can trust me on those matters.

Also, the type of evidence the speaker has when she produces an utterance is considered to provide indications regarding the speaker's reliability. The piece of information may have been obtained by direct or indirect perception, inference, memory or hearsay. Direct evidence (i.e. evidence based on direct perception) is often regarded as being more accurate and more trustworthy than indirect evidence (such as hearsay or reported speech, see Cornillie and Delbecque 2008: 39). If the speaker indicates that she witnessed the state of affairs she reports, then she gives her addressee reasons to think that she is a reliable source of information. Yet, when the speaker modifies her utterance with indirect evidence, she is generally thought to lower her degree of reliability as a source (especially when she uses hearsay adverbs such as *allegedly* or *reportedly*). In fact, if the speaker marks her utterance with a hearsay construction, she indicates that the piece of information she communicates is second-hand information, and specifically that it is provided by an unknown source of information. Because she cannot evaluate the source of information of her reported content and because she did not acquire it herself, she cannot be assessed as a reliable source of information.[41] The gist of this discussion is summarised in Figures 1 and 2 below.

41 Not all reported evidence lowers the speaker's reliability though. When the speaker decides to embed her communicated content under a third-person parenthetical

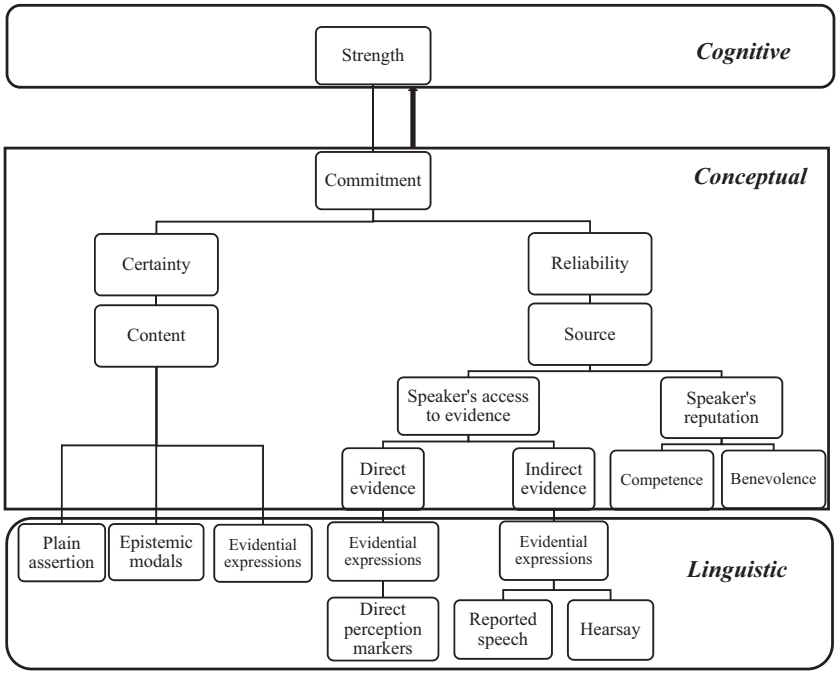

Figure 1: An alternative model of commitment

In the original model and in the subsequent experiments, there was no linguistic marker attached to the speaker's reputation. In later comments, Dr. Napoleon Katsos suggested that honorifics such as *Your Excellency* could be added under the category of speaker's competence, as linguistic markers.

(such as *the doctor told me p* or *the president said p*), she may want to strengthen the certainty of the content she conveys. The speaker may use reported speech to strengthen her claim, by using the reported source of information's reputation rather than her own, which is comparatively weaker (see discussion in Section 7.3.2).

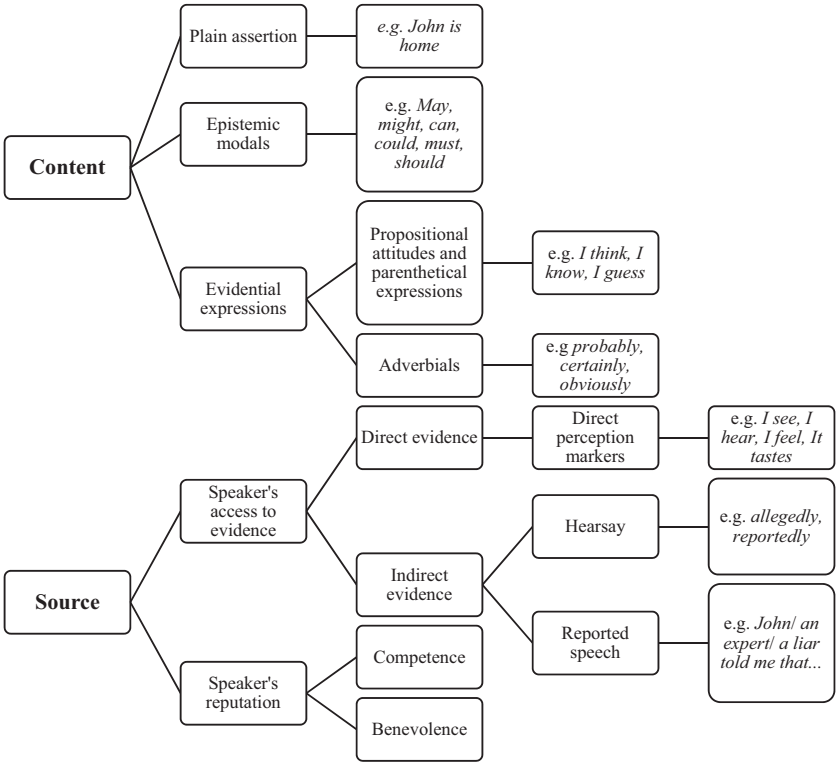

Figure 2: Examples of commitment markers

If it is theoretically useful to link certainty to the communicated content and reliability to the source of information, it is difficult to deny the various overlaps one observes between the two categories, especially when it comes to the linguistic marking of certainty and reliability. Specifically, evidentials give indications about the certainty of the content (for example, in the case of adverbials and propositional attitude markers) but they also convey information regarding the speaker's access to evidence (e.g. direct or indirect evidence markers), which bears on reliability. One must acknowledge that the communicated content and the source of information are interrelated without being

interchangeable. As was previously highlighted by Carston (2002) and Schenner (2010), providing the hearer with evidential support for one's piece of information may impact on the communicated certainty of this same piece of information. For instance, a piece of information based on clear perceptual evidence might be thought to convey a high degree of certainty. Also, if the speaker embeds her communicated content under a third-person parenthetical, she may want to strengthen the certainty of the content she communicates.

The source's reliability impacts on the certainty of the communicated content, and the reverse is true as well. If the speaker repeatedly provides accurate pieces of information, this will impact on her reliability as a source. Yet, a reliable source of information may well convey a piece of information which is uncertain.[42]

To sum up, the aim of this model is to propose a relevance-theoretic, hearer-oriented account of commitment. Commitment assignment processes take place in the relevance-theoretic comprehension procedure, starting with the speaker producing an utterance of the type:

U= "Commitment marker (*p*)"

where "*p*" is the propositional content and "commitment marker" an epistemic modal, an evidential or the zero-marked form of the assertion. Commitment is believed to be derived at the level of higher-order explicatures, i.e. where propositional attitudes and illocutionary forces are derived. It is construed as a function of both the certainty of a content and of the source's reliability. It is then cognitively translated into the hearer's cognitive environment as different degrees of strength. Strength is crucial to this account of commitment: through higher-level explicatures, different degrees of certainty and reliability for a given utterance are represented as corresponding degrees of strength in the hearer's cognitive environment. However, before these assumptions enter the hearer's cognitive environment, the content and the speaker

42 See Section 7.3.4, where it is clear that a source of information can be deemed unreliable, independently of the certainty of the communicated content.

are thought to be checked by what Sperber et al. (2010) call "epistemic vigilance mechanisms".

6.5 Epistemic vigilance

There are three main ways to gain knowledge: perception, inference and testimony (Clément 2008: 54). However, a considerable amount of our knowledge is acquired from others (Sperber et al. 2010: 360). Knowledge acquisition is a risky process since, as hearers, we are threatened by misunderstanding, accidental or intentional misinformation and deceit. Speakers' and hearers' expectations are not always aligned when it comes to communication: if as hearers, we expect true, accurate and genuine information to extend our knowledge of the world, our main aim as speakers is to produce an effect in our addressee, regardless of whether the piece of information we provide him with is actually true or not (Sperber et al. 2010: 360).

Misinformation may have heavy consequences in an individual's cognitive environment, as it can lead to false inferences. A false piece of information is dangerous to human beings' cognitive architecture for it has "the power to infect any data set with which it subsequently interacts" (Cosmides and Tooby 2000: 34). Yet, because human beings still communicate in spite of the risks mentioned above, an evolutionary approach to communication predicted the emergence of a suite of cognitive mechanisms called "epistemic vigilance" (Sperber et al. 2010). It is defined as a mental module which works in a fast and subconscious way (Padilla Cruz 2012: 365−366), whose purpose is to protect communicators from misinformation. It refers to "an ability aimed at filtering out misinformation from communicated contents" (Mascaro and Sperber 2009: 370), or more generally as the individuals' alertness to the believability and the reliability of communication (Padilla Cruz 2012: 365). In other words, epistemic vigilance mechanisms calibrate our epistemic trust, that is, our willingness to believe the speaker and

accept her utterances as true, thereby preventing us to be accidentally or intentionally misinformed (Wilson 2011: 20).

6.5.1 Graded mechanisms

Sperber et al. (2010: 363) construe epistemic vigilance as graded mechanisms. Even though it is assumed that hearers always exert some degree of epistemic vigilance towards all communicated contents, these mechanisms are thought to be more or less activated depending on the relevance of the communicated information to a given addressee (Sperber et al. 2010: 381). Because epistemic vigilance mechanisms involve costly processes, hearers might decide to keep them to a minimum when the information is irrelevant to them. Kissine and Klein (2012) as well as Mazzarella (2013) argue that these mechanisms are particularly active when highly relevant information is presented or when salient assumptions are contradicted. When this happens, epistemic vigilance may constrain the construction of interpretive hypotheses from the beginning. Thus, the investment of cognitive energy is tantamount to the potential relevance of a communicated information to a given individual (Mazzarella 2013: 38–39).

6.5.2 Understanding and believing

Epistemic vigilance mechanisms are generally believed to work at the stage between comprehension and acceptance, in order to warrant the calibration of trust and filter incoming information based on truth and relevance assessment (Hart 2011: 754–755, quoting Sperber 2000; Oswald 2011: 809).[43] Research has investigated the step between

43 Epistemic vigilance mechanisms are believed to work at the stage between comprehension and acceptance, even though research has shown it can intervene early on in the comprehension process to sort out information about the speaker. It seems then that epistemic vigilance is a free-floating module which can constrain the interpretive process at various points. This type of flexibility is in line with what Relevance Theory says about mutual adjustment in parallel processing.

understanding and believing (Gilbert, Krull and Malone 1990; Gilbert, Tafarodi and Malone 1993; Hasson, Simmons, and Todorov 2005; Kissine and Klein 2012) and has aimed to determine which of the Cartesian or Spinozan model is best suited to account for the process of information integration. The Cartesian model posits that information is represented in the mind without reference to its veracity before being analysed (Gilbert et al. 1993: 221), whereas the Spinozan model predicts that all assumptions are represented as true prior to a rational analysis of their veracity (Gilbert et al. 1993). In short, the former view posits that comprehension and belief are two distinct and independent processes, while the latter postulates that individuals cannot understand without automatically believing that the communicated pieces of information are true (Hasson et al. 2005: 571).

Gilbert et al.'s (1990) experiments investigated the Spinozan model by integrating what they call "an interruption task" in the participants' encoding process. Participants were presented with statements of the form "*An X is a Y*", where *X* is a Hopi (nonsense) word and *Y* its English equivalent (e.g. *A monisha is a star*). Participants were told that shortly after the utterance, the computer would print either the signal *true* or *false*. They were then asked to respond as fast as possible to the sound of a tone, a task which was meant to alter the encoding of the truth of the statements presented to them. Gilbert et al. (1990) predicted that participants would be prevented from accessing the second phase of the process (i.e. assessing and possibly rejecting the piece of information), thereby potentially leading them to recall false information as true. Yet, the reverse was not predicted to be true: true information would not be recalled as false information. Overall, results indicate that the Spinozan view of human comprehension is accurate: if an individual is told *p*, she automatically accepts *p* as true.

Gilbert et al.'s (1990) first experiment was replicated by Hasson et al. (2005) who manipulated the degree of informativeness of the presented pieces information. In Hasson et al.'s view, it was unclear whether Gilbert et al.'s task revealed the participants' actual belief in the pieces of information or just a memory effect about the statements. They also thought that Gilbert et al.'s stimuli (e.g. *A monisha is a star*)

were uninformative. They argued that knowing that an uninformative piece of information is false is irrelevant to individuals. By replacing uninformative statements with informative utterances, the researchers found that recognition performance was not altered by the interruption. Consequently, their results point to the conclusion that belief can be suspended (Hasson et al. 2005: 566; 568–569). Another argument in favour of the Cartesian hypothesis is to be found in Cosmides and Tooby (2000). They claim that "the capacity to receive and process communication could not evolve if the interpretive process simply treated communicated information as architecturally true [. . .] because deceptive exploitation would reduce the signal value to zero in most cases" (2000: 12).[44] Thus, the debate between the Cartesian and the Spinozan models is far from being closed.

For Relevance Theory and studies on epistemic vigilance though, understanding is not believing (cf. Hart 2010; Oswald 2010; de Saussure 2010; Sperber et al. 2010; Wilson 2012; *inter alia*). Relevance Theory assumes that integrating a communicated content in one's cognitive environment is never automatic: communicated information has to be assessed first before being translated into belief (Kissine and Klein 2012). Indeed, to interpret an utterance, the hearer does not have to represent it as true; its corresponding assumptions only need to be manifest.[45]

Sperber et al. (2010: 364) argue against Gilbert et al.'s (1990; 1993) findings which suggest that individuals are trustful by default (i.e. that they would automatically accept communicated information

44 Architectural truth is defined as follows "information is treated by an architecture as true when it is allowed to migrate (or be reproduced) in an unrestricted or scope-free fashion throughout an architecture, and is allowed to interact with any other data in the system that it is capable of interacting with" (Cosmides and Tooby 2000).

45 Manifest assumptions are assumptions which are not yet inferred or perceived but which are capable of being inferred or perceived as true or probably true at some point (Sperber and Wilson 1995: 39, see Section 7.4.1 for a general discussion of manifestness).

as true and only critically assess it when circumstances force them to do so). On the contrary, Sperber et al. claim that individuals are trustful because they are vigilant in the first place: if pieces of information are automatically accepted as true, how could the hearer recognise the circumstances in which to critically assess them if he is not vigilant in the first place? Relevance Theory as well as studies on epistemic vigilance argue that hearers can correctly understand the content of the speaker's utterance without accepting it or complying with what is understood. The communicative intention is fulfilled (i.e. the utterance is interpreted and understood) but the corresponding informative intention is not (i.e. it is not accepted in the addressee's cognitive environment), (Sperber et al. 2010: 364–366). In this view, understanding is managed by the relevance-guided procedure whereas acceptance is controlled by epistemic vigilance mechanisms. Comprehension will lead to acceptance if and only if epistemic vigilance mechanisms do not lead us to doubt (Sperber et al. 2010: 368–369).

6.5.3 Epistemic vigilance and the relevance-guided comprehension procedure

Studies on epistemic vigilance postulate an interaction between epistemic vigilance mechanisms and the relevance-guided comprehension procedure (see Sperber et al. 2010; Mazzarella 2013 and Padilla Cruz 2012). Sperber et al. (2010: 376) argue that "comprehension, the search for relevance, and epistemic assessment are interconnected aspects of a single overall process whose goal is to make the best of communicated information" (see Padilla Cruz 2012 and Mazzarella 2013 and 2014 for different accounts of the interaction between epistemic vigilance and the interpretive process).

According to Sperber et al. (2010), there are two distinct processes taking place during utterance interpretation: one geared to determining the relevance of the piece of information (i.e. understanding) and another for its epistemic assessment (i.e. acceptance). Epistemic

vigilance mechanisms are thus crucial at the level of information integration.[46]

Because information may be more or less acceptable and a speaker incompetent and/or malevolent, epistemic vigilance mechanisms developed to assess two dimensions of an utterance: what to believe (i.e. the communicated content) and who to believe (i.e. the speaker).

6.5.4 Vigilance towards the content

When epistemic vigilance mechanisms are targeted at the content, the believability of the content is analysed for inconsistencies or inaccuracies. As discussed earlier, a propositional content can be intrinsically acceptable or unacceptable but also more or less evidenced. It may well be accepted independently of the speaker's reliability. Intrinsically acceptable contents refer to tautologies, logical proofs, truisms, and contents whose truth is sufficiently evidenced by the act of communication itself. Conversely, intrinsically unacceptable contents – which can be rejected independently of their source as well – include logical contradictions, blatant falsehoods and contents whose falsity is sufficiently evidenced by the act of communication itself (Sperber et al. 2010: 374). However, the acceptability of most communicated contents has to be estimated in the context of background assumptions, which may provide either evidence for or against them (Sperber et al. 2010: 374; Wilson 2011: 22). This background information is automatically activated when the relevance-guided comprehension procedure is triggered and leads to contextual effects,

46 The term "source of information" is used here as Sperber et al. (2010) construe it, i.e. as referring to the speaker. It is acknowledged that studies on evidentiality also take it to correspond to the different ways an individual can acquire new information (e.g. by perceptual evidence, inference, hearsay, memory, and so on). Henceforth, the term "source of information" will refer to the speaker producing the utterance and/or the reported speaker.

which all contribute to the improvement of the hearer's knowledge of the world (Sperber et al. 2010: 374–375).[47]

Wilson (2011: 22) argues that assessing the content of an utterance presupposes a logical or argumentative capacity, which allows the hearer to evaluate its internal consistency, guided by the principle of relevance. The hearer's search for a relevant interpretation necessarily involves "the making of inferences which may turn up inconsistencies or incoherences relevant to epistemic assessment" (Sperber et al. 2010: 376). When inconsistencies or incoherences are detected, they trigger a procedure which is believed to be specifically dedicated to this kind of evaluation. When this assessment results in a contradiction, the hearer faces three possibilities: if he thinks the speaker is trustworthy and his assumption is not entertained with a great degree of conviction, then the hearer might end up correcting this assumption. If, however, the speaker is not regarded as trustworthy, the communicated content is simply rejected. When the speaker is trustworthy and the hearer's conflicting background assumptions are held confidently, then conscious processes of coherence checking are triggered.

In this view, epistemic modals and evidential expressions play a key role in the hearer's appraisal of communicated information. As Wilson (2012: 4) puts it, both modal and evidential markers have their roots in epistemic vigilance mechanisms. The use of a categorical assertion, a strong modal or evidential expression may lead the addressee to accept more easily a proposition as true (Hart 2011: 752). For instance, Oswald (2011: 811) construes evidential markers as strengthening the epistemic status of the utterance and thus its probability to be accepted by the hearer. According to him, such linguistic markers have a persuasive function, including leading the hearer to trust the speaker, and to believe the communicated information instead of merely understanding it (see also Wilson 2012: 24; 38). In order to overcome her

47 As a reminder, there are three types of contextual effects in Relevance Theory: the strengthening of an existing assumption, the contradiction and elimination of an existing assumption or the combination with the context to yield new contextual implications.

addressee's safeguards, the speaker needs to warrant the truth of her communicated contents: in other words, the utterance must not raise scepticism (Hart 2011; Oswald 2011). The linguistic literature generally points to the conclusion that linguistic indicators such as those, coined "epistemic positioning strategies" by Marín-Arrese (2011: 790), are devices helping the speaker to persuade her addressee. They do not only benefit the speaker though: the hearer may also use them as cues to defend himself against misinformation.

As discussed above, epistemic and evidential markers express propositional attitudes, considered to belong to the category of higher-level explicatures, which, according to Ahern (2010), are closely related to epistemic vigilance mechanisms. Indeed, higher-level explicatures guide the hearer in his interpretation, providing him with information about the status of the content, i.e. whether it refers to an intuitive belief or a reflective belief (see Sperber 1997). The former type of belief corresponds to representations of actual states of affairs, which are automatically treated as data. Such beliefs are used as premises in various types of spontaneous inference. Sperber (1997) argues that this type of belief is intuitive because the speaker who entertains them does not need to think about the justification she has for holding them. What Sperber (1997) calls "intuitive beliefs" is, presumably, what Cosmides and Tooby (2000) name "architecturally true" information, i.e. pieces of information which are "allowed to migrate (or be reproduced) in an unrestricted or scope-free fashion throughout an architecture, and [are] allowed to interact with any other data in the system that is capable of interacting with" (2000: 6). For instance, Cosmides and Tooby consider that all data in semantic memory is architecturally true.[48] On the contrary, reflective beliefs correspond to a non-basic category of cognitive architecture. They are broadly defined as "credal attitudes towards representations embedded in a validating context of the form V (R)" (Sperber 1997: 3) and refer to

48 Semantic memory refers to the individual's organised world knowledge and includes information regarding the identity of concepts, their spelling and pronunciation, as well as information related to their meaning (Hutchison 2003: 785).

beliefs which are not part of the data-base.[49] Whereas intuitive beliefs correspond to the individual's view of reality, reflective beliefs refer to assumptions entertained in a metarepresentational form, embedded under attitude descriptions. The latter category is believed to be isolated from the former, thereby preventing it from entering into conscious inferential processes (Ahern 2010: 163).

According to Ahern (2010), if the speaker indicates that her piece of information is entertained as an intuitive belief, it will be less likely to induce epistemic caution in the hearer and more likely to modify his cognitive environment. Conversely, if the speaker marks her communicated content as a reflective belief, this will alert the hearer's epistemic vigilance mechanisms and he will carefully consider the piece of information (Ahern 2010: 163–164). Such linguistic indications are recognised to influence epistemic vigilance activation: they would activate mental procedures geared to assessing the validity and reliability of the communicated information.

However, Wilson (2011: 23) suggests that linguistic indicators of epistemic modality and evidentiality do not contribute to appraising the content of the communicated information. Rather, they would be linked to epistemic vigilance mechanisms targeted at the speaker. According to Wilson (2011), the function of epistemic modals and evidentials is not to guide the interpretive process, since the utterance can be well interpreted without them. Rather, they would "display the communicator's competence, benevolence and trustworthiness to the hearer" (2011: 24). Remember that competence refers to the fact that the speaker possesses genuine information whereas benevolence corresponds to the fact that the speaker wishes to share the information she has with her audience (Mazzarrella 2013: 31; 2014). If the speaker openly displays the type of evidence she has for the truth of the proposition she expresses, then it is likely that it will get past the hearer's epistemic vigilance filter because he will trust her as a source. Wilson concludes that evidential markers

49 R is a representation embedded in V, a validating context, which in turn corresponds to the fact that some metarepresentational beliefs may lead the hearer to consider that the metarepresented assumption is true.

"have more to do with getting the audience to trust the speaker than with helping to understand her" (2011: 24). She argues that this type of linguistic indicators is linked to epistemic vigilance mechanisms targeted at the source of information, whereas logical and discourse connectives are related to the mechanisms targeted at the content (Wilson 2011: 21).

Individuals tend to trust a speaker who uses linguistic markers of certainty and reliability, as they provide sound pieces of information which may be subsequently verified as true. Yet, language also gives us the possibility to convey uncertainty, which indicates that the addressee should carefully consider whether to integrate the communicated piece of information in his cognitive environment (Kissine 2013: 93). So, what is the use of markers of uncertainty?

McCready (2015) offers an answer in his evolutionary account of communicative cooperation and more specifically of reliability markers (such as epistemic modals, evidentials and hedges in general). He argues that both evidentiality and cooperation are tightly related, being aspects of reliability assessment. Since preserving one's reputation is important to an individual (and was crucial for his survival), McCready (2015: 3, 36) postulates that some grammatical mechanisms emerged in order to protect the communicators' reputation. From this perspective, the function of some evidentials, modals and hedges would be to safeguard the speaker's trustworthiness even when she communicates uncertainty. Conveying uncertainty represents a risk in terms of reputational damage because the speaker might end up communicating either a false or an insufficiently evidenced content (McCready 2015: 38–39). However, if the piece of information is relevant enough, not saying anything would also be "penalty-worthy", as McCready puts it. When the speaker indicates her uncertainty by inserting a hedge or an evidential marker in her utterance, she is asking her addressee to be "exempted from negative consequences to his reputation resulting from truth or falsity of the utterance" (McCready 2015: 38). Hence, the main function of hedges (including *sort of*, *I suspect that*, *I might be wrong, but*. . ., *this might not be true, but*. . .) would be to protect the speaker from being accused of lying or saying falsehoods, while allowing her to produce utterances without being responsible for "the conversational misdeed of making an irrelevant assertion" (McCready 2015: 76).

While McCready subsumes evidentials, modals and hedges under the label of "reliability markers", I would like to stress that the present research distinguishes between certainty markers (i.e. plain assertions, epistemic modals and evidentials such as propositional attitude markers and adverbials) and reliability markers (evidentials markers indicating indirect or direct evidence, see Figure 2 above). As mentioned earlier, even though there are overlaps between certainty and reliability, the two concepts are not interchangeable.

6.5.5 Vigilance towards the source of information

If the content can affect the hearer's appraisal of the speaker by displaying her reliability, the reverse is true as well: the speaker's reliability can affect the believability of the communicated piece of information. There is obviously a complex interplay between the speaker and a piece of communicated information, but the former is a key factor the hearer needs to take into consideration when he decides to integrate a piece of information in his cognitive environment (see Section 7.3.4). To be sure, the source of information may strongly influence the hearer's acceptance or rejection of a piece of information. If the hearer thinks the speaker is trustworthy, he will expect her to provide and share accurate information (i.e. to be competent and benevolent) and he will be likely to accept as true the piece of information provided by the speaker (Sperber et al. 2010: 374). Indeed, epistemic vigilance mechanisms which evaluate the speaker may facilitate the move from understanding to believing (Ifantidou 2014: 92). According to Ifantidou (2014: 119), the addressee does not only need to assess the speaker's competence and benevolence, he should also exercise some degree of epistemic vigilance towards her interests (especially when they are divergent).

The hearer may be led to accept a content as true because it is an accepted view or because the source of information is deemed authoritative. Yet, when the hearer meets his interlocutor for the first time, previous assessments of her epistemic authority are not available. Therefore, the hearer must start either with an initial move of trust or

rely on his first impression of the speaker's overall trustworthiness. He can also ground his assessment on her reputation, if he knows anything about it (Sperber et al. 2010: 380–381).

6.5.6 Concluding remarks

Since our knowledge of the world is mainly acquired through others' testimonies and that communication is a risky enterprise, Mascaro and Sperber (2009) as well as Sperber et al. (2010) postulate the emergence of epistemic vigilance mechanisms which are targeted at both the communicated content and its source of information. These mechanisms are believed to interact with interpretive processes and their activation depends on the relevance of the communicated content to a given individual. For Sperber et al. (2010), understanding is not believing. Human beings are therefore deemed vigilant by default.

Linguistic markers of certainty including epistemic modals and evidential expressions crucially influence the hearer's exertion of epistemic vigilance: they can either strengthen or weaken the epistemic status of the utterance and hence, either lower or enhance the hearer's epistemic vigilance mechanisms, respectively. However, Wilson (2012) argues that such linguistic cues contribute more to appraising the speaker's competence and benevolence than the propositional content conveyed by her utterance. All in all, not only linguistic indicators of modality and evidentiality provide evidence for what the speaker communicates, they are also believed to bear on the source of information, their role being to get the hearer to trust the speaker. By offering sound information, the speaker displays her reliability (Wilson 2012: 38). Nevertheless, even though such linguistic markers may affect the speaker's reliability, the speaker's status as a source of information also influences the believability of the pieces of information she communicates. Linguistic markers conveying certainty and the hearer's appraisal of the speaker's reliability as the source of information are components which are to be taken into consideration in the study of information integration and, more specifically, of the notion of commitment in communication.

Within the relevance-theoretic framework, utterance interpretation is guided by the principle of relevance. The hearer infers the speaker's meaning and commitment towards the communicated content. At the stage of acceptance, the hearer's epistemic vigilance mechanisms check the content (i.e. its certainty) and the source of information (i.e. the speaker's and/or reported speaker's reliability). If the piece of information is accepted in his cognitive environment, it is assigned a degree of strength depending on the hearer's assessment of the certainty of the content and of the source's reliability. In what follows, I suggest that commitment is at the heart of utterance interpretation, epistemic vigilance mechanisms and strength assignment processes as they unfold during the communicative exchange.

6.6 An alternative account of commitment

Except for accounts of commitment attribution (Morency et al. 2008; de Saussure and Oswald 2008, 2009) and Cornillie and Delbecque's (2008) definition of commitment which takes into account both the speaker's and the hearer's point of view, the notion of commitment has mainly been addressed from the speaker's perspective.[50] Yet, speaker commitment is only one aspect of commitment. This research suggests widening the scope of inquiry and using the notion of commitment to account for both utterance comprehension and information integration phenomena, thereby explicitly acknowledging the existence of the speaker's and the hearer's private and public commitments.

On the speaker's side, commitment linked to an utterance expresses a property of the speaker's mental representation at the time of utterance production, which is described by Relevance Theory as the strength of

50 As mentioned in Chapter 4, Cornillie and Delbecque (2008: 38) define the notion of commitment as "the speaker's appraisal of the knowledge used and the hearer's interpretation of its reliability".

an assumption in her cognitive environment. Speaker commitment is therefore the initial level of commitment and it remains private. What is made public by the speaker are her utterances, where she presents the piece of information she wants to convey as more or less certain and reliable. To make her commitment explicit, the speaker has the possibility of using several linguistic means. They include, for instance, prosodic effects. Consider example (74):

(74) He's attractive?

Even though (74) is a declarative, the speaker's rising tone weakens the commitment conveyed by the utterance (see Malamud and Stephenson 2015).

Syntactic effects impact on commitment as well: an assertive conveys certainty, whereas an interrogative does not, as we can see in (75) and (76):

(75) Mr Darcy is waiting for me.
(76) Is Mr Darcy waiting for me?

In (75), the speaker asserts that Mr Darcy is waiting for her, i.e. that it is a state of affairs she presents to be true in the world. However, it is not the case in (76), where she asks her addressee whether (75) is a true state of affairs.

Commitment is also influenced in varying degrees by modal (e.g. 77–78), lexical (e.g. 79–82), adverbial (e.g. 83–84) and evidential effects (e.g. 85–86):

(77) Jane must be home.
(78) Jane may be home.
(79) I know that Jane is home.
(80) I affirm that Jane is home.
(81) I think that Jane is home.
(82) I imagine that Jane is home.
(83) Jane is certainly home.
(84) Maybe Jane is home.
(85) I saw that Jane is home.
(86) I heard that Jane is home.

Examples (77) to (86) all provide different attitudes towards the propositional content *Jane is home*. Whereas utterances (77), (79), (80) and (85) include a linguistic marker of high certainty or of high reliability, the content of (78), (81), (82), (83), (84) and (86) is embedded under a weaker linguistic marker. Indeed, the modal *must* conveys more certainty or necessity than its weaker counterpart *may*. *I know* and *I affirm* also express high certainty, unlike *I think* which is generally considered to convey a lower one. However, it is stronger than *I imagine*. As far as the adverbials are concerned, *certainly* and *maybe* do not communicate high certainty even though *certainly* is still more certain than *maybe*. Finally, direct perception evidentials such as *I saw that p* express more accuracy than the hearsay marker *I heard*.

Examples (77) to (86) present a variety of certainty and reliability markers. These give indications with respect to the degree of commitment the speaker wants her utterance to be marked with. Building on the preceding examples, a second type of commitment is distinguished, i.e. the speaker's communicated commitment, which is necessarily public. However, commitment marked at the utterance level is neither automatic, exhaustive nor compulsory. There is obviously no unequivocal principle to assess how speaker commitment is translated into communicated commitment.

On the hearer's side, when he interprets the speaker's utterance, one of his tasks is to assess her degree of commitment regarding the proposition expressed. This requires the hearer's interpretation of linguistic markers (including plain assertions, epistemic modals and evidential expressions) as well as of the relevant contextual assumptions. It gives rise to a third type of commitment, inspired from Morency et al. (2008) as well as de Saussure and Oswald (2008; 2009), namely, attributed commitment. Attributed commitment corresponds to the mental representation of the communicated utterance, which is attributed to the speaker, in the hearer's cognitive environment. For instance, when the speaker utters (87), a plain assertion, she conveys that *Jane is a writer* is a fact, a certainty.

(87) Jane is a writer.

The hearer will thus attribute a maximal commitment to the speaker, on the grounds of (87), regardless of whether the speaker really believes (87) to be true, as he can only take as input what she presented as her communicated commitment, i.e. as her public commitment.

Once the intended meaning and the degree of communicated commitment have been retrieved, the communicated piece of information still needs to be accepted or rejected by the hearer. If, after being checked by the hearer's epistemic vigilance mechanisms, the communicated piece of information is accepted, the hearer's contextual assumptions triggered by utterance interpretation are then assigned a certain degree of strength in his own cognitive environment. The degree of strength assigned to this assumption is not always tantamount to the one attributed to the speaker's communicated assumptions (see Section 7.3 for discussion). For instance, if the speaker utters (88) but that the hearer is closely acquainted with Mr Darcy and knows for a fact that he is a bachelor, he will attribute the speaker a high commitment but will not integrate (88) in his cognitive environment.

(88) Mr Darcy is already married.

This fourth type of commitment, i.e. hearer commitment, is triggered by utterance interpretation, guided by expectation of relevance and assessed by epistemic vigilance mechanisms. In line with Morency et al. (2008) and de Saussure and Oswald (2008; 2009), it is suggested that attributed commitment is based on the interpretive process, that is, understanding. Attributed commitment leads to hearer commitment, which, in turn, interacts with the processes of information integration, i.e. what Sperber et al. (2010) call "believing" or "acceptance".

6.7 A commitment typology

Based on the different linguistic features which can be indicative of the speaker's communicated commitment, it is proposed to revise the

existing accounts of commitment by providing a clearer definition grounded on four distinct types of phenomena:

(89) **Speaker commitment** is the degree of strength assigned to assumptions in the speaker's cognitive environment.
Communicated commitment refers to the speaker's way of presenting a piece of information with more or less certainty and herself and/or a reported speaker as more or less reliable.
Attributed commitment corresponds to the result of the hearer's assessment of the certainty of the communicated information and of the speaker's and/or reported speaker's reliability, based on available linguistic cues and contextual assumptions.
Hearer commitment refers to the degree of strength assigned to this same piece of information as it is integrated in the hearer's cognitive environment.

This typology offers a solution with respect to the existing confusion in the literature about the different types of commitment. It is based on a double opposition between, on the one hand, speaker and hearer and, on the other hand, mental representations (whether the notion captures commitment as a property of a cognitive representation) and linguistic marking (whether the notion captures commitment as a property of a linguistic form). This typology deals with the speaker-oriented and hearer-oriented components of commitment as well as with its private and public facets. Since attributed commitment is dependent on contextual assumptions which cannot be equated with the speaker's actual intentions, it seems necessary to distinguish between these different types of commitment to account for such cases in communication.

To illustrate this point, imagine that Elizabeth does not want to go to a ball because she is afraid of meeting someone she dislikes. The utterance in (90) will probably give rise to a strong attributed commitment since the evidential marker *everybody says that p* conveys high certainty and reliability:

(90) Everybody says that this ball is going to be awfully boring.

In (90), the speaker consciously misleads the hearer by anticipating that the hearer's attributed commitment will not correspond to her actual commitment.

Attributed commitment (which cannot be divorced from information processing) and hearer commitment (which is related to information integration in one's cognitive environment) can be equated with the distinction between understanding and believing (see Section 6.5.2). When the speaker produces an utterance, the hearer inferentially derives her intended meaning and attitude towards the proposition expressed. The output of the interpretive processes is the basis on which the hearer can attribute commitment to the speaker. At this stage, the hearer represents the speaker's communicated information in his cognitive environment as an assumption with a certain degree of strength (i.e. what she has retrieved as the intended speaker's communicated commitment). It is posited that the hearer decides whether to integrate it or not in his own cognitive environment (with the same or a different degree of strength than the one attributed to the speaker) after utterance interpretation. To do so, the hearer needs to consider linguistic markers of certainty and reliability along with contextual assumptions. Yet, attributed commitment and hearer commitment are not exactly tantamount to the distinction between understanding and believing because the former distinction is specific (i.e. it is dedicated to strength assessment), whereas the latter is more general as it is concerned with all types of explicatures and implicatures.

While most of the existing definitions of commitment describe it as related to belief and truth, it is reconsidered here in both linguistic and cognitive terms. Communicated commitment is defined as the speaker's way of presenting the piece of information with more or less certainty and reliability. The speaker's utterances are then translated into assumptions in the hearer's cognitive environment and are assigned a certain degree of strength. Linguistic markers, which express different degrees of certainty and reliability in utterances, are used by the hearer a) to attribute a degree of communicated commitment to the speaker and b) as cues to assign the degree of strength to incoming assumptions in his own cognitive environment. In line with Papafragou's (2000a) definition, strength is construed here as a cognitive notion, as a property of assumptions, which is a function of utterance interpretation.

6.8 Conclusion

This chapter puts forward an alternative, relevance-theoretic account of commitment that borrows from studies on epistemic vigilance and focuses on commitment assignment processes in a hearer-oriented perspective. My model suggests that commitment is the output of explicatures that metarepresent the relative certainty and reliability of the piece of information conveyed by an utterance, both in the hearer's representation of the speaker's cognitive environment and in the hearer's own cognitive environment.

In this research, strength is construed as a graded property of assumptions governed by two parameters: the certainty of the communicated content and the source of information's reliability. Hence, processes of commitment assignment determine, at least in part, the strength of the contextual assumptions derived from utterance interpretation. This concept of strength converges towards studies on epistemic vigilance, which postulate the emergence of epistemic vigilance mechanisms targeted at the two dimensions of epistemic vigilance, i.e. the content and the source.

The typology presented in Section 6.7 captures both the communicative (i.e. public) and cognitive (i.e. private) aspects of commitment by providing four types of commitment. Speaker commitment represents the initial level of commitment in the speaker's cognitive environment. When the speaker produces an utterance, she marks it (either linguistically or non-linguistically) as more or less certain and reliable: this is communicated commitment. On the hearer's side, the result of his assessment of the speaker's utterance in terms of certainty and reliability is identified as attributed commitment. Finally, the degrees of certainty and reliability retrieved by the hearer from the interpreted utterances are translated in his cognitive environment as degrees of strength, after the communicated content (i.e. certainty) and its source (i.e. reliability) have been checked by his epistemic vigilance mechanisms.

To come back to the questions raised in the previous chapters, this model of commitment takes the speaker as committed to what

she utters, simply because she is responsible for both the physiological and psychological activities linked to utterance production. In line with de Saussure (2010), it is argued that she can represent allocentric points of view. Besides, such representations do not necessarily entail a weakening or a lack of commitment. By representing another discourse or by embedding the proposition expressed under another source of information, the speaker may want to strengthen her communicated commitment (see Section 7.3.2 for a detailed discussion).

Since Relevance Theory locates assumptions in the individuals' cognitive environment, it is consequently assumed that the speaker is committed to assumptions in her own. Hence, the speaker can communicate non-commitment, by indicating that she does not possess a given assumption in her cognitive environment.

In conclusion, because utterance interpretation is (at least in part) about assessing and assigning degrees of communicated commitment and degrees of strength to its resulting representation in the hearer's cognitive environment, it follows that commitment is considered to be degree-sensitive.

The next chapter is dedicated to the presentation of the three predictions resulting from this model. It is argued that attributed commitment and hearer commitment are influenced by three main factors: (a) the certainty of a content; (b) the source of information's reliability; and (c) the salience of the communicated piece of information, i.e. its relative importance to a given hearer.

7 Theoretical predictions of the model

7.1 Introduction

My model focuses on the two previously presented hearer-oriented types of commitment, namely, attributed commitment and hearer commitment, which are both considered to be constrained by expectations of relevance as well as by the demands of our epistemic vigilance mechanisms. It is suggested, in line with Relevance Theory, that attributed commitment and hearer commitment influence the way individuals store assumptions in their cognitive environment. From an experimental perspective, the theoretical claims made above translate into three predictions regarding (a) linguistic markers of certainty; (b) the hearer's appraisal of the speaker's reliability; and (c) the salience of the communicated piece of information. In what follows, these predictions will be addressed in turn.

7.2 Linguistic markers of certainty

In most languages and specifically in English, there is not a particular grammatical class devoted to expressing commitment. However, as mentioned earlier, commitment can be linguistically conveyed by different means (e.g. prosodic, syntactic, modal, lexical, adverbial and evidential means, among others). This research mainly focuses on plain

assertions, epistemic modals and evidential expressions, i.e. propositional attitude markers in general, leaving aside prosodic features such as intonation or accents, which can also have a weakening or strengthening function (see Padilla Cruz 2012 for further discussion). In this section, I clarify my position towards the categories of linguistic markers which will be used in the experiments described in Chapter 9. I will then review experimental data dealing with linguistic markers of certainty, before presenting my prediction regarding these linguistic markers and their interaction with the two hearer-oriented types of commitment.

7.2.1 Plain assertions, epistemic modals and evidential expressions

As we saw in the literature review, one of the strongest linguistic marking of commitment is the categorical assertion. Indeed, plain assertions represent a strong claim to truth (Ifantidou 2001: 122) by inducing in the audience the belief that *p* is true (Sperber and Wilson 1995: 153). In most languages, total commitment is not marked and information presented as such is assumed to be true unless otherwise indicated (Matlock 1989, in Marín-Arrese 2011: 791). Within studies on epistemic vigilance, Sperber et al. (2010: 366) claim that when the speaker makes an assertion, she indicates that she commits herself to providing the hearer with genuine information, which is the basis of the hearer's acceptance of her utterance as true. As they put it, "making an assertion typically involves claiming enough epistemic authority to expect epistemic trust from the addressee" (2010: 366). If the speaker presents her piece of information as an assertion, she gives the hearer sufficient motives for accepting it.

When a speaker decides to modify her utterance with an epistemic modal expression, it is generally acknowledged that her claim to truth is weakened (Ifandidou 2001: 12). Indeed, by doing so, the speaker relativizes the possibility of the communicated content with respect to her set of beliefs (Papafragou 2002). Linguistic markers including evidential expressions also have a limiting effect regarding actual evidence,

even in the case of a strong marker such as *I am sure that p* (Hassler 2010). Even though the speaker presents her piece of information as certain, this marking interestingly indicates that there is room for doubt. In fact, the speaker is communicating that as far as she knows, her piece of information is genuine, but the grounds on which the hearer may accept it are weakened.

Following Lyons (1977: 793–794) who argues that *knowing that p* implies *believing that p*, I suggest that the linguistic markers studied in this research can all be ordered as an ad hoc scalar inferential relation, as in (91):[51]

(91) I don't know that *p* < I guess that *p* < I believe that *p* < I know that *p* < plain assertion

Levinson ([1983] 2007: 133) claims that a linguistic scale "consists of a set of linguistic alternates, or contrastive expressions of the same grammatical category, which can be arranged in a linear order by degree of *informativeness* or semantic strength". It is proposed here to view the scale of markers in (96) as consisting of linguistic expressions arranged in a linear order by degree of certainty, which will be translated into cognitive strength in the hearer's cognitive environment.

As a result, when a speaker utters (92), the hearer cannot infer that the speaker *knows* that Jane is dining with Caroline Bingley:

(92) I think Jane is dining with Caroline Bingley.

A cooperative communicator is generally expected to provide her addressee with the strongest marker of certainty she has available at the time of utterance production, which will depend on her current knowledge. In line with Levinson ([1983]/2007), Papafragou, Li, Choi and Han argue that (2007: 257):

51 This line of reasoning is applied by Horn (1972) to scalar implicatures.

> if we assume that a speaker seeks to be adequately informative, if she uses an evidential marker encoding a lower degree of validity, this gives rise to pragmatic effects such as the expression that she was not in a position to offer a higher ranked term.

If the speaker communicates (93) when she knows for a fact that the man in question is fond of her addressee, she is not entirely cooperative. In this case, she willingly withholds her knowledge of the actual situation:

(93) I guess he is fond of you.

Similarly, a speaker would be uncooperative if she were to utter (94) when she was invited to the ceremony and saw Charlotte Lucas getting married.

(94) I hope that Charlotte Lucas got married.

Then, if the hearer assumes that her interlocutor is cooperative and seeks to be optimally informative, he is entitled to expect that her communicated content comes with the highest degree of certainty she can provide at the time of utterance and in light of her current knowledge.

Linguistic markers of certainty are viewed here as distributed along a continuum going from the absolute uncertainty that *p* to the absolute certainty that *p*, as shown in (95):

(95) Absolute uncertainty that *p* < weak certainty that *p* < certainty that *p* < absolute certainty that *p*.

This scale translates into different levels of commitments: non-commitment (which includes linguistic markers such as, for instance, *I do not know if p*, *I have no idea if p, I hope that p*), weak commitment (e.g. *I think that p*, *I assume that p*, *probably p*, *apparently p*), intermediate commitment (e.g. *I know that p*, *I am sure that p*, *clearly p*, *obviously p*) and high commitment (e.g. plain assertions), as illustrated in (96):

(96) Non-commitment (i.e. absolute uncertainty that *p*) < weak commitment (i.e. weak certainty that *p*) < intermediate commitment (i.e. certainty that *p*) < high commitment (i.e. absolute certainty that *p*). [52] [53]

Following Levinson ([1983]/ 2007: 133) and Papafragou et al. (2007), when a speaker uses a lower point on the left side of the scale, she communicates that a higher point does not apply or is not accessible at the time of utterance production. In this case, when the speaker uses a weak commitment marker, she makes mutually manifest the fact that she cannot provide the piece of information with more certainty.

The model of commitment proposed in this research construes non-commitment as the speaker's way of communicating that she does not possess a given assumption in her cognitive environment. The hearer, then, does not have enough evidence to accept it. So, if the speaker produces an utterance which does not convey any commitment (for example, if she modifies her utterance with a linguistic marker such as *I do not know if*, *I have no idea if* or *I hope*), this does not mean that she is not to be held responsible for what she uttered.

Wilson (2011; 2012) argues that epistemic modals and evidentials do not guide the hearer's interpretive processes and do not help him to understand the utterance as would procedural expressions like *but* or *however*. Epistemic modals and evidential expressions would rather display the communicator's competence and benevolence. In Wilson's

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52 These rankings are based on intuition and on examples found in the linguistic literature. Later in this research, we will see that after testing these linguistic markers of certainty on 41 participants in a pre-test, the rankings will be revised (see Chapter 9). For instance, linguistic markers of certainty such as *obviously*, *for sure* or *I know* were repeatedly ranked as highly as (or even higher) than the plain assertion. In light of these results, the intermediate commitment category was eventually dropped.

53 This same line of reasoning can be applied to linguistic expressions of reliability, when reliability is marked at the level of the utterance and expresses the speaker's access to evidence (cf. Section 7.3). This can be illustrated as follows: non-commitment (i.e. speaker's or reported speaker's unreliability) < weak commitment (i.e. weak reliability) < intermediate commitment (i.e. reliability) < high commitment (i.e. high reliability).

view, the utterance can be interpreted without them. Yet, according to Ahern (2010: 147), propositional attitudes, which convey commitment, are crucial during utterance interpretation. Because intention recognition is partly based on the speaker's attitude towards her proposition, it guides the hearer in his comprehension procedure. Therefore, from Ahern's perspective, propositional attitudes provide the hearer with evidence on how to interpret an utterance. They are also believed to influence his acceptance of a given piece of information in his cognitive environment. While it is agreed that providing information with certainty may impact on the reliability of a source of information, linguistic markers of certainty are not all about displaying the source's reliability. For instance, a highly reliable source of information can well provide the hearer with uncertain pieces of information, without necessarily affecting his reputation, as in (97):

(97) *The doctor*: "I am afraid I can't say if Miss Jane will recover".

A lot has been written in the theoretical linguistic literature about the linguistic markers mentioned above. Also, experimental research in psychology and cognitive sciences provides strong evidence suggesting that very young children distinguish between different epistemic attitudes. In what follows, some of the findings related to the communicated content and linguistic markers of certainty are briefly reviewed.

7.2.2 Experimental literature on linguistic markers of certainty

As early as 1989, Moore and Davidge showed that 4-year-olds are sensitive to explicit linguistic markers indicating the certainty of the communicated information. Their first aim was to investigate whether children's understanding of the expression of certainty could be distinguished from their comprehension of the difference between factivity and non-factivity (1989: 636). If children judge the expressions based on factivity, then the linguistic marker *know* (construed as a factive verb of high certainty) should be differentiated from both *be sure* (a non-factive of high certainty) and *think* (a non-factive of low certainty).

However, if children assess information in terms of certainty, then *think* should be differentiated from *know* and *be sure*. The experimental design involved two puppets making contradictory statements. One puppet told the children: "I *know* the candy is in the blue box", whereas another puppet said: "I *think* the candy is in the red box". Once the children had heard both testimonies, they had to decide from which box to pick the candy. Children tended to choose the box the puppet who used the verb *to know* indicated, while rejecting the direction of the one who used *to think*. Overall, Moore and Davidge's results establish that *think* was construed as less certain than *know* by 4- and 5-year-olds and that it led to the discrimination of the piece of information conveying the less certainty (Moore and Davidge 1989: 633). Therefore, results suggest that children assess information in terms of certainty but not in terms of factivity.

Dudley, Orita, Hacquard and Lidz's (2015) experiments aimed to examine further 3-year-olds' representations of the two verbs *think* and *know* to assess their understanding of factivity. According to their view, the verb *to know* is factive since it presupposes the truth of its complement. However, *to think* is non-factive as the truth of its complement is not encoded in its verbal form (Dudley et al. 2015: 242). In Moore and Davidge's studies (1989) briefly sketched above, 3-year-olds (unlike the older children) were not able to reliably use the *know* statements over the *think* statements. Dudley et al. (2015: 246) argue that the reason why it is so is because the nature of the tasks may have underestimated the children's knowledge. Hence, they propose to include in their experiment a "more naturalistic use" of the two verbs. Children were seated in front of two different boxes and were instructed to find where the experimenter hid a toy, after receiving a clue. They were told that Lambchop, a puppet, would be joining the game but that it was too shy to do anything but whisper to the experimenter. An occluder kept participants from seeing where the experimenter hid the toy. On each trial, the occluder was removed and the puppet would whisper in the experimenter's ear before the latter delivered the test sentence (for instance, *Lambchop thinks that it's in the red/blue box* vs *Lambchop knows that it's in the red/blue box*). Half of their participants were able to distinguish between *think* and *know* in ways indicating they understood that *know* presupposes the truth

of its complement, whereas *think* does not. However, the other half made no distinction between the two verbs, not even under negation. Dudley et al. (2015) conclude that some children at least can distinguish between *think* and *know* before age 4, even if they still assume by default that *think* sentences report true beliefs (2015: 259). All in all, children in both studies (Moore and Davidge 1989 and Dudley et al. 2015) did assess the pieces of information on the grounds of their certainty. They were generally capable of distinguishing between linguistic markers conveying different degrees of certainty.

Sabbagh and Baldwin's (2001) studies investigated whether children consider the speaker's knowledge states (including her certainty conveyed by linguistic markers such as *I know* and *I don't know*) when making initial word-referent link. Study 1 was devoted to such uses of linguistic markers and aimed to establish if children learn better new words when they are provided by knowledgeable speakers (e.g. a speaker who would say: *I know right where her blicket is*. Then pointing to a box. *It's in this box, here*) than when they come from ignorant speakers (e.g. a speaker who would tell the children *I don't know what a blicket is. Hmmm. . . Maybe it's in this box, here*). Results from study 1 suggest that 3- to 4-year-old children learned words better when taught by knowledgeable speakers (i.e. speakers providing sound information under the form of a categorical assertion or using strong linguistic markers such as *I know*). Overall, Sabbagh et al.'s (2001) three studies all highlight the importance of epistemic considerations in children's word learning. Indeed, 3- and 4-year-olds seem to rely on the speaker's linguistically conveyed mental states (i.e. whether she is knowledgeable or ignorant) when learning new words (Sabbagh et al. 2001: 1067).

One of Jaswal, Vikram and Malone's (2007) studies tested whether 3-year-olds are more prone to believe a testimony provided by a speaker who is presented as certain, than one coming from an uncertain, ignorant and/or distracted speaker. In study 1, if the informant spoke with uncertainty (e.g. *I think this is a spoon*) rather than with confidence, 3-year-olds responded sceptically, by correcting the speaker when she made a mistake. Indeed, results indicate that children were less likely to trust a speaker's labelling if she indicated uncertainty about her testimony.

Lastly, Stock, Graham and Chambers (2009) experimentally tackled the influence of the speaker's certainty on children's sensitivity to generic statements (e.g. *Dogs are smart*) and their non-generic counterparts (e.g. *This dog is smart*). The main goal of their research was to investigate whether pre-schoolers' understanding of generics was influenced by the speaker's certainty, or if children blindly accepted generics as true. During the warm-up trials, the children were exposed to three different conditions: confident, uncertain and neutral. In the confident condition, the experimenter stressed her familiarity with the objects presented to the children (e.g. *This box is filled with things I brought from home. I've had these things for a long time, so I have seen them before, and I know a lot about them*), whereas in the uncertain condition, the experimenter emphasised her lack of familiarity with the same objects (e.g. *This box is filled with things I borrowed from my friend. My friend just gave them to me, so I have not seen them before, and I don't know much about them*). In the neutral condition, no information was given regarding the experimenter's lack of familiarity or confidence regarding the objects (e.g. *This box is filled with a whole bunch of things. There are a lot of things in here that I'm going to show you*). The experimenter then began the set of 6 trials by presenting a creature, labelling it with a novel count noun and describing a non-obvious property of the creature. In the generic-neutral condition, no information about knowledge of the objects was provided (e.g. *This is a wug. Wugs can see things in the dark*), whereas in the generic-confident condition, the speaker's knowledge about the objects was emphasised (e.g. *This is a wug. Wugs can see things in the dark. Yes, I know wugs can see in the dark*). Finally, in the generic-uncertain condition, the speaker's lack of knowledge was highlighted (e.g. *It says it's a wug* [looking at as sticker underneath the object]. *I think wugs can see things in the dark*). Once the description of a creature was complete, the experimenter placed it in front of the children with a second similar exemplar. Then, she asked the children whether the second creature shared the same properties as the creature which had just been presented (e.g. *Does this wug see things in the dark?*). Results suggest that, when presented with generic descriptions of unfamiliar kinds, children took linguistic markers

of certainty into account. Pre-schoolers did not blindly accept generic descriptions as true. Rather, they considered the perceived quality of the speaker's knowledge. Results also indicate that children only refused to extend a generically described property to a new exemplar when the speaker seemed uncertain. Otherwise, the generic statements had the same effect in the neutral or certain condition. This can be easily explained by the fact that the neutral condition provided the children with a plain assertion, which is believed to convey the highest degree of certainty.

The above studies suggest that children are sensitive to linguistic markers of certainty such as plain assertions, epistemic modals and evidential expressions. Children based their judgment on these linguistic markers, which also affected how they perceived the speaker's reliability. Indeed, children considered speakers as more reliable when they presented pieces of information with certainty. Children also tended to withhold their trust if the speaker was judged unreliable, i.e. if her communicated content was uncertain. These results seem to favour Wilson's (2011; 2012) claim that epistemic modals and evidentials are linked to epistemic vigilance mechanisms targeted at the source.

Bernard, Mercier and Clément (2012) as well as Mercier, Bernard and Clément (2014) addressed the argumentative dimension of communicated contents in a series of experiments. In the first set of studies, they examined children's sensitivity to the presence of connectives such as *because* in communicated arguments. When the children had to decide where a character put her toy, they tended to favour the answer provided by the speaker who used a connective (e.g. *The ball is in the blue box, because Camille always puts her ball in the blue box*), rather than the answer giving the alternative location (i.e. the red box) without the connective. Bernard et al.'s (2012) findings suggest that 4- and 5-year-olds (as well as adults) are sensitive to connectives such as *because*, whose epistemic use is believed to increase the acceptance of a conclusion (Bernard et al. 2012: 129).

The second set of studies (Mercier et al. 2014) tested 3- to 5-year-olds' ability to weigh different types of arguments. Children and adults were presented opinions supported by a strong argument (e.g. *The dog*

went this way because I've seen him go in this direction), a circular argument (e.g. *The dog went this way because he went in this direction*), or an unsupported opinion (e.g. *The dog went this way*). When faced with two contradictory opinions, all the participants favoured the claim supported by strong arguments. Yet, in the second study, 4- and 5-year-olds (but neither the 3-year-olds nor the adults) preferred the opinion supported by a circular argument, suggesting that this type of argument, in this context, may have been construed as a marker of authority. Indeed, a simple restatement of the speaker's position could be taken as a way to remind her audience of her dominant status (Mercier et al. 2014: 7). If adults tended to think that the argument was weaker because of its circularity, children may have interpreted this same circularity as a marking of a strong degree of epistemic value. These results could cast doubt on the view that a plain assertion (i.e. "an unsupported opinion") conveys the maximal degree of communicated commitment.

Overall, these studies provide empirical evidence that linguistic markers of certainty are taken into account by individual's epistemic vigilance mechanisms, even at an early age. Indeed, children assessed incoming information on the grounds of its certainty. They were capable of distinguishing between weak and strong linguistic markers and of calibrating their trust (or, to be more specific, their choice in a given task) accordingly. Children also tended to learn new words better from knowledgeable speakers (i.e. an assessment of the source of information only based on linguistic markers conveying high certainty) and to trust a testimony when it was communicated with certainty (be it via a plain assertion or a strong linguistic marker such as *I know*) rather than with uncertainty. Individuals in general were also more prone to prefer arguments with connectives such as *because* as well as strong arguments over their neutral or circular counterparts.

7.2.3 Prediction

Building upon this theoretical and experimental literature, my first prediction concerns both attributed commitment and hearer commitment.

It is based on the idea that specific linguistic markers including categorical assertions, epistemic modals and evidential expressions, give indications regarding the degree of certainty assigned by the speaker to her utterance (which is subsequently represented as the cognitive strength of the corresponding contextual assumptions in the hearer's cognitive environment).

Consequently, the more the speaker presents her information as linguistically certain, the more likely the hearer is to attribute a strong commitment to the speaker. He will then be more inclined to integrate this piece of information in his cognitive environment with a high degree of strength (*modulo* the predictions below). In terms of epistemic vigilance, the more certain the piece of information, the less activated the hearer's epistemic vigilance mechanisms and the more likely its acceptance (as confirmed by Moore and Davidge 1989, Sabbagh and Baldwin 2001, Jaswal et al. 2007, Bernard et al. 2012 and Mercier et al. 2014, *inter alia*). Consider examples (98–101):

(98) I don't know if Jane is a writer.
(99) I guess that Jane is a writer.
(100) I am sure that Jane is a writer.
(101) Jane is a writer.

Comparatively, the hearer will be more inclined to integrate (100) and (101) in his cognitive environment given the certainty conveyed by the propositional attitude marker *I am sure* in (100) and the categorical assertion in (101), than (99) which conveys considerably less certainty. According to the typology provided in Section 6.7, (98) does not convey any commitment since the speaker communicates that she does not possess the assumption *Jane is a writer* in her cognitive environment. Indeed, the model presented in the previous chapter posits that an individual cannot be committed to an assumption she does not entertain.

Linguistic markers of certainty are believed to influence attributed commitment and hearer commitment. Research has shown that some of these markers are taken into account by individuals' epistemic vigilance mechanisms at an early age. If linguistic makers of certainty help the hearer to evaluate the content of the communicated information, they

also affect his perception of the source of information's reliability (be it the actual speaker producing the utterance or the reported speaker), which is the topic under discussion in the following section.

7.3 The source of information's reliability

Another factor which influences attributed commitment and hearer commitment is the hearer's appraisal of the speaker's and/or reported speaker's reliability. McCready (2015: 252) makes the most surprising claim regarding the source of information:

> For linguists, it seems to be a normal assumption that we learn information from utterances, not from speakers, so speaker mental states are not directly relevant to the evaluation of what is learned, because what is learned from an utterance is independent of whether or not the speaker is right in believing what she says.

Relevance theoreticians would probably strongly disagree. As highlighted earlier, the relevance-theoretic comprehension procedure is based in part on the hearer's inferences about the speaker's intentions and attitude towards what she communicates. In what follows, it is claimed that pieces of information are accepted in an individual's cognitive environment in light of the speaker's communicated mental states (through propositional attitude descriptions, for instance) and if the speaker presents them as relevant (Sperber and Wilson 1995; Wilson 1995; Wilson and Sperber 2002).

This section starts by considering the source of information in everyday communicative exchanges. Source-related concepts such as competence, benevolence, expertise, trustworthiness and authority are briefly addressed before reported speech and the *argumentum ad verecundiam* fallacy. Then, it is argued that cases of interpretive uses like third-person parentheticals do not always have a weakening function with respect to communicated commitment. A body of experimental research concerned with the addressee's appraisal of the source

of information's reliability is then surveyed before I present my second prediction. Finally, the interaction between the hearer's appraisal of the speaker's reliability and linguistic markers of certainty will be discussed from a theoretical perspective.

7.3.1 Competence and benevolence

As communicators, we do not only pay attention to the propositional content expressed by the utterance and to the way it is presented by the speaker (i.e. as more or less certain). We also seek for behavioural signs of sincerity, credibility and trustworthiness to determine whether the speaker is reliable (Hart 2011: 755). According to Sperber et al. (2010), when our epistemic vigilance mechanisms are targeted at the source of information (i.e. "who to believe"), they check whether the speaker is competent and benevolent. As a reminder, competence refers to the fact that the speaker possesses genuine information, whereas benevolence corresponds to her wishes to share it with the audience. In the following discussion, I would like to draw a parallel between competence and benevolence and the two notions of expertise and trustworthiness, respectively.

Overall impressions of expertise and trustworthiness are thought to rely on heuristics, which are considered to be almost automatic.[54] People use such heuristics to optimise their processing of assumptions and save cognitive energy (Sundar 2008: 77). It is widely acknowledged that individuals tend to be convinced by the notion of expertise. Indeed, the existence of the "expertise heuristic" (Sundar 2008: 74) indicates individuals' cognitive preference for authoritative information.

According to Mercier (2011: 12), expertise is one of several factors the addressee's epistemic vigilance mechanisms take into consideration when assessing incoming pieces of information. Since people are more

54 A heuristic is defined by Sundar (2008: 92) as "judgments rules that users employ, which means that they carry in their head a theoretical connection between the presence of a cue and the relevant credibility judgment".

inclined to accept information provided by an expert, it is likely that the addressee will pay more attention to an argument stemming from this type of source. When an addressee really cares about a given piece of information he would be susceptible to reject otherwise, the expertise heuristic plays a key role in information evaluation. Indeed, when the source of information is deemed unreliable, the addressee will discard this piece of information very quickly. Yet, when the piece of information is provided by a reliable source, it will be evaluated more thoroughly, even though the source's expertise does not guarantee the addressee's blind acceptance. The concept of trustworthiness can also facilitate the hearer's integration of a given piece of information in his cognitive environment.

Trustworthiness is one of the fastest personality judgment people make. Todorov, Pakrashi and Oosterhof's (2009) priming studies suggest that people rapidly and spontaneously make trustworthiness judgments from facial appearance.[55] Indeed, such judgments were formed after only 100ms exposure to a face. Results show that as the exposure time of faces increased, trustworthiness judgments improved. However, a 33ms exposure to a novel face seemed to be sufficient for traits judgments. Interestingly, the trustworthiness of novel faces can be evaluated even when participants are unaware of the presence of a face (e.g. in the case of masked priming), (Todorov et al. 2009: 813, 828). Trustworthiness assessments may also influence the subsequent validity check of the communicated pieces of information.

When new information is not acquired through direct perception, it depends crucially on the source's reliability. What Cosmides and Tooby (2000) call "source tags" (for instance, self vs other, vision vs memory,

55 Priming is defined as "a nonconscious process whereby the facility for detecting and identifying words and other perceptual objects is improved by recent encounters with the same words or objects" (Haist et al. 1992: 692). For instance, Meyer and Schvaneveldt (1971)'s seminal work suggested that participants were significantly faster in a lexical decision task when the target was associatively or semantically related to the prime (e.g. *nurse* is recognised much faster if it follows *doctor* rather than *bread*).

etc.) are crucial when the hearer does not possess direct evidence about a given piece of information.[56] Following this reasoning, if the source tag is maintained with the integrated piece of information, then subsequent indications regarding the source may be used to weaken or strengthen what Cosmides and Tooby call the "assigned truth-status" of information. However, these source tags are costly to maintain. As a result, if sufficient corroboration, consistency with architecturally true information, or certification by a trusted interlocutor are met, the source tag no longer needs to be maintained. Consequently, source tags fade with time. As Cosmides and Tooby (2000: 12) point out:

> This is what makes trust so useful (one does not need to keep the cognitive overhead of scope-processing communication) but so dangerous (one cannot recover and correct all of the implanted misinformation). After all, what is important about an encyclopaedia of (accurate) knowledge about the world is the facts themselves: not who told them to you, what their attitude towards them was, or when you learned them. Typically, once a fact is established to a sufficient degree of certainty, source, attitude, and time tags are lost [. . .], e.g., most people cannot remember who told them that apples are edible or that plants photosynthesize.[57]

Therefore, sources are believed to be erased from memory whereas associated pieces of information remain.

To assess and further undo a strong assumption about the reliability of a speaker who normally would deserve to be trusted is a complex and

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56 Cosmides and Tooby's (2000) interpretation of the notion of source is wider than the one presented in this research. They construe it as including sources internal to our cognitive architecture such as vision, episodic memory (i.e. the memory of events such as time, places or associated emotions that can be explicitly expressed and remembered), previous inferences and so on, but they also involve the speaker as a source of information.

57 A scope representation is defined as "a representation that is regulated or decoupled from semantic memory, has source tag (own experience, time X, location Y), has an attitude slot (= *experienced* or *am re-experiencing*), has a time tag (a place in a chronology), and has a place tag. Moreover, for any propositional content originating with another person, the episodic M-representation [i.e. a kind of metarepresentation] can include an embedded source tag indicating that person and his/her attitude towards the proposition" (Cosmides and Tooby 2000: 31).

costly process (de Saussure 2005: 131). Even though we generally want to make the effort, we tend to rely on overall impressions of competence (e.g. expertise) and benevolence (e.g. trustworthiness), which are less demanding in terms of cognitive energy. Yet, these heuristics also result in the lowering of our epistemic vigilance mechanisms (Sperber et al. 2010). Trust, which is calibrated by our epistemic vigilance, may thus be triggered by the speaker's familiarity, expertise, trustworthiness and authority, among other factors. This reliance on heuristics is nevertheless risky and may endanger our cognitive environment if we integrate assumptions which are neither sufficiently evidenced nor verified.

If a speaker is considered to be both competent and benevolent (e.g. an expert on the topic under discussion and a trustworthy source of information), then she may acquire an authoritative reputation.[58] An authoritative source of information generally induces trust in the hearer. This trust may lead the speaker's communicated content to be easily accepted by her addressee. Individuals are more prone to trust and believe an expert's testimony on her topic of expertise than some other source, if they are not capable of assessing the piece of information themselves. Authority is therefore linked to reliability whenever an expert or an official authority is identified as the source of information (Sundar 2008: 84).

Authority may even lead to acceptance without full comprehension. Indeed, Sperber (2005: 5) argues that "trust in authority may give us a reason to accept the validity of an argument without examining its steps, or even without quite comprehending". This is what he refers to as "the guru effect". As acknowledged by Sperber and Wilson (1995: 63), speakers who benefit from such a reputation know that the success of their informative intention is mutually manifest, even before they produce an utterance. Yet, when the speaker lacks this authority, she must adapt her informative intentions to her perceived reliability.

58 Sperber (2005) defines authority in terms of group and reputation. Reputation is a function of a consensual view of the speaker's competence and reliability and of the way it is verbalised in a given social group.

Human beings tend to rely on heuristics to save cognitive energy. The expertise heuristic is directly linked to the notion of source of information, which encompasses the speaker as well as the reported speaker. An addressee is therefore cognitively more likely to accept an incoming piece of information provided by a reliable source (e.g. an expert who is also considered to be trustworthy) rather than from an unreliable one. Overall impressions of reliability induce trust in the addressee, thereby facilitating his acceptance of a communicated information. However, saving cognitive energy by using such heuristics has a downside: the addressee lowers his epistemic vigilance mechanisms and is consequently more vulnerable to deceit.

7.3.2 Reported speech and the ad verecundiam *fallacy*[59]

When a piece of information is based on mediated evidence, in the case of reported speech for instance, the hearer needs to evaluate the validity of its content on the grounds of the original source of information's reputation (i.e. the reported speaker's). According to Marín-Arrese (2011: 792–793), this validity mainly depends on the source of information's expertise, prestigious status or on whether the piece of information is valid and justifiable. Consequently, the communicated content also plays a role in the assessment of the source's reliability.

Relevance Theory makes a distinction between the descriptive use and the interpretive use of a communicated assumption. When a representation is used descriptively, it presents a state of affairs. This type of representation is believed to be truth-conditional. In an interpretive use, the representation is embedded under another representation with a propositional form which resembles it in content (e.g. a thought or utterance attributed to someone else or to the speaker at some other

59 Reported speech is construed here as a linguistic marker bearing on the source. Contrary to hearsay particles which do not refer to any specific source, reported speech clearly identifies a speaker, who can be judged in terms of competence and benevolence, as exemplified above in Figures 1 and 2.

time).[60] This metarepresentational use of language is not construed as contributing to truth conditions (Sperber and Wilson 1995: 68, 231; Papafragou 2000b: 526; Traugott 2003: 663; Noh 2000: 74).

In the case of a description of a state of affairs, the speaker is typically thought to commit to the truth or probable truth of the proposition expressed (Clark 2013: 261; Ifantidou 2001: 148–149). In opposition, to the extent that the utterance is used interpretively, the speaker is considered to weaken the strength of the proposition expressed, a process which is believed to affect the speaker's degree of commitment to what she communicates (Ifantidou 2001: 152). Thus, interpretive use is seen as suspending the speaker's commitment by indicating that the views represented in her utterance are not her own (Ifantidou 2001: 95; Papafragou 2000b: 526).

Specifically, hearsay expressions (such as *reportedly*, *allegedly*, *supposedly*) are considered to indicate that the proposition expressed is a second-hand piece of information. Indeed, they refer to information the speaker has heard and does not have direct evidence for (Itany 1998: 48). The main function of hearsay particles is therefore to indicate weak speaker commitment to the truth of the proposition expressed or that the speaker avoids committing herself to the truth of her utterance (Palmer 1986; Chafe 1986). In this view, the function of hearsay particles would be "to detach the speaker from [her] utterance, which neutralises assertion and prevents [her] from forming a judgement of [her] own" (Celle 2009: 269).

Celle (2009) draws a clear distinction between reported speech and hearsay adverbs like *reportedly*, *allegedly* and *supposedly*. She defines reported speech as a judgment originating from someone different than the speaker. Hearsay adverbs refer to what other speakers have said and introduce a point of view different from the speaker's, but they are not based on any original speech act one can actually trace. According to Celle (2009: 281), an assertion modified by a hearsay adverb is suspended until the view expressed is confirmed by facts or by the addressee. Because *reportedly* indicates that the speaker attributes the responsibility for

60 Interpretive use is clearly grammatically or lexically indicated (e.g. with linguistic markers such as *allegedly*, *reportedly*, *admittedly* or *Jane told me that*).

the proposition to someone else, because *allegedly* makes reference to a source of information who might be fictitious, and because with *supposedly* "a theoretical representation – whether it be the speaker's logic or an accepted norm – is presented as removed from reality" (Celle 2009: 289), hearsay adverbs can never strengthen the communicated information, unlike third-person parentheticals. In this perspective, non-commitment is construed as a strategy "for the speaker to suggest disagreement without ever facing the other in a direct way" (2009: 290).

However, I would like to argue that the interpretive use does not always weaken the strength of its corresponding assumptions. On the contrary, the speaker may attribute the utterance to a source she highly trusts (e.g. an authority) in order to convey high commitment (Itani 1998: 48). Third-person parentheticals (e.g. *X said*) can be used to strengthen the reliability of the source of information and the certainty of the communicated assumption.

This is linked to one fallacy which takes authority as its basis, i.e. the *argumentum ad verecundiam*. Its function is to make the epistemic status of an assumption stronger by appealing to a seemingly relevant and recognised authority (Oswald 2011: 811). Indeed, the *ad verecundiam* fallacy displays the voice of an expert and does so to present an argument as unarguable. This strategy relies on the fact that an expert's utterance enhances the validity of the corresponding assumptions in the addressee's cognitive environment (Maillat and Oswald 2011: 8–9). Oswald (2010: 356) also contends that presenting a piece of information provided by an expert (or any person the addressee is likely to trust) increases the epistemic strength of the communicated information. Therefore, the *argumentum ad verecundiam* is seen as a strategy which might lead the addressee to accept a piece of information more easily (Oswald 2010: 362). Let us consider one of Ifantidou's (2001: 102) examples, reproduced below:

(102) Chomsky said that *p*.

Provided that the hearer is sensitive to Chomsky's reputation and that he considers him as an expert in his field, (102) offers strong evidence for the truth of *p*. When the speaker uses this strategy, she strengthens

her communicated commitment, even more than if she uttered it from her own point of view. By presenting the piece of information in this way, she gives the hearer more reasons to accept her utterance as true (Ifantidou 2001: 157).

In light of the commitment typology suggested in Section 6.7, I argue that when the speaker uses strengthening reported speech constructions, she presents her pieces of information as more reliable (as well as more certain) than if they had been uttered by her alone. The main goal of the model of commitment proposed here is not to determine whether the speaker faithfully reported the original speaker's intended meaning. Instead, it aims to show how the speaker uses these discourse strategies to give her addressee more reasons to accept her communicated information as sound. Consequently, the traditional view according to which the speaker necessarily distances herself from what she utters (and therefore reduces her commitment) when she uses such linguistic marking does not stand in this view. On the contrary, the speaker may want to strengthen her communicated commitment.

Pace McCready (2015), I claim that the speaker's attitudes are directly relevant to information assessment, as shown by different linguistic theories and a growing body of experimental data in psychology and psycholinguistics. The hearer's appraisal of the speaker's reliability can constrain the interpretive process from the beginning (see Breheny, Ferguson and Katsos 2013; Padilla Cruz 2012 and Mazzarella 2013). If, as Wilson (2012) argues, modals and evidentials also give indications regarding the speaker's competence and benevolence, then the hearer's considerations about the speaker play a key role at early stages of the comprehension process. Indeed, Sperber and Wilson (1995) posit that the hearer needs to trust the speaker in order to derive all the intended contextual assumptions.

7.3.3 Experimental literature on the source of information's perceived reliability

Empirical evidence established that individuals use the speaker's epistemic state at early stages of comprehension and that such information

is used to predict upcoming referents (Breheny et al. 2013; Heller, Grodner and Tanenhaus 2008), or to block the derivation of scalar implicatures (Breheny, Ferguson and Katsos 2012). For instance, Breheny et al. (2013) show that the derivation of quantity implicatures (e.g. the derivation of *Not all of the X* from *Some of the X*) is constrained by information about the speaker's knowledge state. Results indicate that implicature derivation is restricted when the speaker is considered to lack knowledge regarding the stronger alternative, suggesting that information about the speaker's knowledge (i.e. competence) possibly constrains interpretation earlier than imagined (Mazzarella 2013: 38). Thus, addressees may suspend implicatures processing when they think the speaker is incompetent or unreliable. Work investigating adult language processing (Grodner and Sedivy 2011) points to the conclusion that evidence of the speaker's unreliability can also lead to the suspension of real-time inferences about reference (Sobel, Sedivy, Buchanan and Hennessy 2012: 92). Therefore, the speaker's reliability is thought to interact with linguistic information during online utterance processing.

Stewart, Haigh and Ferguson's (2013) eye-tracking study shows that the hearer's appraisal of the speaker's authority influences the online processing of conditional speech acts. To test this hypothesis, Stewart et al. (2013) manipulated how the participants perceived speakers' control (i.e. whether the sources of information have the power to state a conditional promise or not). For instance, if a senior academic journal editor utters (103), it is considered felicitous since this type of editor has control over what works get published in his journal.

(103) If you submit your research to the Journal of Physics, then I will publish it in the next issue.

However, if the same conditional promise is uttered by a junior undergraduate student, it will be deemed infelicitous because the source of information does not have control over the journal publications. In their experiment, Stewart et al. (2013) used two types of conditionals: on the one hand, conditional promises (e.g. (108) above), which requires the speaker to have perceived control over the consequent; and, on the other

hand, conditional tips (for example, *If you submit your research to the Journal of Physics, then it stands a good chance of being published*), which do not require the speaker to have any type of control over the consequent (2013: 1–4). Results indicate that when participants processed a conditional promise asserted by a speaker who did not have perceived control over the consequent, this resulted in disruption to eye-movements, suggesting that participants rapidly detected the incongruency. Participants were indeed highly sensitive to the degree of the speaker's perceived control and the subsequent resulting incongruity when this specific speaker made a conditional promise. Yet, conditional tips were easily processed in both conditions (i.e. whether the speaker had or had not perceived control over the consequent event). Further evidence (Evans and Twyman-Musgrove 1998; Ohm and Thompson, 2004; Verbrugge, Dieussaert, Schaeken and Van Belle, 2005) also points to the conclusion that the speaker's perceived control and her credibility impact upon the way the participants process information. Therefore, the hearer's appraisal of the speaker (in this case, her perceived control) has an early influence on interpretive processes.

Children's appraisal of the source of information has also been a privileged topic in the psychological and psycholinguistic fields these past few years. Tasks such as labelling, new referent assignments and recall of new words were shown to be influenced by how children perceived the speaker's reliability. For instance, Koenig and Echols's (2003) experiments demonstrate that 16-month-olds are sensitive to the speaker's mislabelling. Indeed, they were more prone to direct their attention towards the speakers who falsely labelled objects, than towards those who were successful in doing it. Pre-schoolers seemed also capable to make inferences about the speaker's labelling of a novel object, depending on the history of her reliability (i.e. accuracy), (e.g. Corriveau and Harris 2009; Koenig, Clément, and Harris 2004; Koenig and Harris 2005), (Sobel et al. 2012: 91). In the same vein, Diesendruck, Carmel and Markson (2010) examined the role of speaker's reliability in children's inferences about the disambiguation task. In this task, children are presented with one novel object and a familiar one. The experimenter then typically elicits a choice between the objects using a

novel word (e.g. *show me the wug*). Results established that children were more likely to choose the novel object when the speaker (i.e. a puppet) was a reliable source of information, rather than when she was unreliable. This indicates that the new referent provided by the speaker was accepted as the one referring to that novel object (Sobel et al. 2012: 91–92). Furthermore, 3-year-olds tended to recall and learn novel words better from a speaker who had accurately labelled familiar objects prior to the learning phase, than from one who was repeatedly mistaken (Jaswal and Neely 2006; Koenig et al. 2004). More generally, 3 and 4-year-olds seem to evaluate speakers based on their competence and benevolence (e.g. Birch, Vauthier and Bloom 2008; Clément 2010; Koenig and Harris 2005; Mascaro and Sperber 2009) as well as their reliability (Corriveau and Harris 2009; Mercier et al. 2014: 2). At the age of 6, children also understand that informants are less likely to be truthful when they make self-serving or self-interested claims (Bernard et al. 2012: 129). Hence, children are able to make a distinction between reliable and unreliable sources of information at a very young age. They use this discrimination as a basis for epistemic decision-making, i.e. in order to accept or reject a speaker's testimony. Some of these studies will be reviewed now in greater detail.

Clément, Koenig and Harris (2004) investigated whether 3-to 4-year-olds could keep track of particular informants' reliability or unreliability over successive occasions, whether children would use that kind of information to assess the speaker's trustworthiness and finally, whether they could retain information about the speaker's accuracy when they were asked explicit judgment questions such as *one of these people kept saying something wrong/right: which one?* Unlike previous studies, the informant's reliability was not mentioned to the children who could only base their judgment on the prior false or correct labelling of the object that was presented to them (Clément et al. 2004: 694). Children correctly identified the reliable and unreliable speaker and could use the informants' prior accuracy to guide their judgments. According to the authors, children demonstrated selective trust in the new information conveyed by reliable informants.

Koenig and Harris (2007) considered whether the nature of children's trust in testimony was based on evidential correlations between statements and facts, as assumed by Hume (1748/1977), or whether it was based on their assessment of a specific speaker's trustworthiness. The experimental data they review show that children monitor speakers' reliability and truthfulness. In fact, children seem to keep track of the speaker's prior accuracy when evaluating the new pieces of information she communicates.

In their second experiment, Jaswal et al. (2007) tested whether a speaker's attentional focus and history of accurate labelling would influence children's receptiveness. Results show that 3-year-olds were prone to be sceptical about a speaker's testimony when she was previously wrong or when she seemed distracted. These results suggest that 3-year-olds respond differently to the same testimony, depending on the speaker's behaviour (Jaswal et al. 2007: 263).

Southgate, Chevallier and Csibra's (2010) studies investigated whether 17-month-olds were able to apprehend the speaker's epistemic states and if they could use them to infer what she intended to refer to. In the three false belief tasks, infants in the true-belief condition generally chose the object in the box indicated by the experimenter.[61] However, most of the infants in the false-belief condition correctly chose the object that was not referred to by the experimenter. According to Southgate et al. (2010) these results provide strong evidence for the claim that children are able, from a very young age, to attribute mental states to a speaker in a pragmatic context, even when she has a false belief (2010: 911).

Finally, Sobel et al. (2012) studied whether the pragmatic environment generated by a reliable or an unreliable speaker affected children's

61 The false-belief task is an experiment involving two characters, typically Sally and Anne. The former has a basket and the latter a box. Sally also has a marble, which she places into her basket before leaving the room. While she is away, Anne takes the marble from the basket and puts it in the box. When Sally returns, the child is asked where she will look for her marble. The child passes the test if she answers that Sally will look in the basket, where she put the marble.

interpretation of new labels. They found that it was the case: when children interacted with an unreliable speaker (in terms of incorrect labelling), their behaviour and eye-movements conveyed their belief that the speaker was not considered to be a reliable source of information (Sobel et al. 2012: 90). Overall, results establish that children construct different pragmatic environments with reliable and unreliable speakers, suggesting that they learn new labels differently depending on the speakers' prior ability to provide reliable or unreliable information (Sobel et al. 2012: 101–102).

This brief survey of experimental studies related to the addressee's assessment of the speaker shows that reliability is often assessed in terms of accuracy and of certainty of the piece of information. A speaker who communicates that she *knows that p* is considered to be reliable, but when she communicates that she *thinks that p*, she is deemed unreliable. This suggests that certainty and reliability, even though distinct, are closely related and interact at the level of utterance interpretation. If linguistic markers of certainty help the hearer evaluate the validity of a given piece of information, they also affect his perception of the speaker's reliability. Moreover, these experiments point to the conclusion that the hearer's appraisal of the speaker, even at a very young age, plays a key role at early stages of the comprehension process. In what follows, it is argued that the hearer's appraisal of the speaker is crucial at the level of attributed commitment and hearer commitment.

7.3.4 Prediction

The second prediction considers the hearer's appraisal of the speaker's reliability. To decide whether to integrate a piece of information in his cognitive environment, the hearer's assumptions regarding the source's reliability must be taken into account, as they are likely to influence attributed commitment and hearer commitment. Let us imagine that both a reliable and unreliable speaker produce the same categorical assertion. Content-wise, the hearer will attribute the same degree of commitment to both speakers, since, according to the literature, they

both presented their utterance in the strongest way possible. Yet, it is argued that the hearer will be more likely to integrate with a high degree of strength a piece of information provided by a reliable speaker, than one conveyed by her unreliable counterpart. In terms of epistemic vigilance, it is claimed that the more reliable the source, the less activated the hearer's epistemic vigilance mechanisms, and the more likely the communicated piece of information will be integrated in his cognitive environment (e.g. Clément et al. 2004; Koening and Harris 2007; Mascaro and Sperber 2009; Sobel et al. 2012).

Furthermore, when a speaker mentions another source than herself in her utterance, this does not necessarily entail a weaker commitment. As discussed earlier, even though descriptive use is associated with speaker commitment, as opposed to interpretive use which is not, a speaker may refer to another source in order to strengthen her communicated commitment. Consider the following examples:

(104) Jane to Elizabeth: "You are invited to Pemberley."
(105) Jane to Elizabeth: "Mr Darcy told me you were invited to Pemberley."

By mentioning the owner of Pemberley as the source of information in (105), Jane strengthens the assumptions conveyed by her utterance, thereby making it more easily acceptable than (104). In light of the definition of communicated commitment given above, Jane, by reporting Mr Darcy's words (either accurately or not), does not lower her commitment or distance herself from what she communicates: she presents the piece of information as more reliable, thus strengthening the corresponding assumptions.

Needless to say that there is an interaction between linguistic markers of certainty and the hearer's appraisal of the source's reliability in everyday communicative situations. It can be hypothesised that the evaluation of the source of information overrides markers of certainty assessment when the hearer attributes commitment and integrates the information in his cognitive environment. As Mazzarella (2013: 32) argues, if the source of information is detected as unreliable by some epistemic vigilance mechanisms, the hearer might question

the believability of the communicated information. As a result, he is expected to lower his own commitment. The hearer's appraisal of the speaker thus plays a major role at the level of hearer commitment.

Let us imagine that we are lost in the forest with Mr Horn (Mike, not Laurence), who is extremely competent and, naturally, benevolent. As we all know, he is an adventurer and an expert on how to survive in hostile environments. If he utters (106), his expertise (which contributes to his reliability) will be taken into account in our choice to eat or not the berry in question, even though it is red and even though we all learned at some point that it is not the best colour for berries growing in the wilderness. According to the prediction above, (106) is likely to be integrated with a high degree of strength in our cognitive environment. However, if we are lost in the forest with John Blackwood, who is incompetent and above all malevolent – in fact we suspect that he wishes to harm us and possibly wants us dead – then we will (or should) think twice before eating the red berry. Consequently, the assumption that this type of berry is generally edible in (107) will certainly not be integrated in our cognitive environment.

(106) Mike (reliable): "Eat the red berries, they are edible."
(107) John (unreliable): "Eat the red berries, they are edible."

Yet, in the case of what Sperber et al. (2010) refer to as intrinsically believable or unbelievable pieces of information, the speaker's reliability does not play a role in the process of hearer commitment, as in (108) and (109). Indeed, even though (108) is uttered by a reliable speaker, the communicated information is blatantly false.

(108) Mike (reliable): "2+2=5"
(109) John (unreliable): "2+2= 4"

I argue that the hearer's appraisal of the source's and/or reported speaker's reliability is likely to override linguistic markers assessment during the process of strength assignment, as in the following scenarios:

(110) Mike (reliable): "I think Jane was robbed."
(111) John (unreliable): "Jane was robbed"

If the two utterances were to be compared in the same context, it is likely that (110) would be integrated in the hearer's cognitive environment, even if it conveys weaker certainty than (111). However, (111) would be discarded despite its assertion status, as its source is deemed highly unreliable.[62]

The main goal of this section was to show that the source of information is crucial at the level of attributed commitment and hearer commitment. Not only do hearers seek for reasons to accept and believe a given communicated content, but they also assess its source of information, looking for signs of competence and benevolence. This assessment of the speaker's reliability is automatic and relies on different heuristics, which seem to explain why we tend to have a cognitive preference for authoritative information. Our cognitive preferences are exploited by a common fallacy, namely the *argumentum ad verecundiam*, whose function is to strengthen the epistemic status of assumptions by appealing to a recognised authority. Following this line of interpretation, I claim that such appeal to authority may also function as a strengthening strategy. Third-person parenthetical constructions may reinforce communicated commitment rather than weaken the speaker's commitment, as some studies in the enunciative, polyphonic, or relevance-theoretic frameworks suggest. Empirical evidence demonstrates that the hearer's appraisal of the speaker plays a key role at early stages of the comprehension process. I also argue that a piece of information provided by a reliable speaker is more likely to be accepted in the hearer's cognitive environment (and less likely to be checked by his epistemic vigilance mechanisms) than a piece of information conveyed by an unreliable speaker. In other words, reliability increases the degree of strength assigned to incoming assumptions in the hearer's cognitive environment.

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62 Let us also imagine a situation where a liar utters "The doctor told me that *p*". This piece of information would not be integrated in the hearer's cognitive environment either since the hearer's appraisal of the speaker overrides linguistic cues (including plain assertions, epistemic modals and evidential expressions as well as other indications regarding the source of information such as *The doctor told me that p*).

7.4 The salience of the piece of information

The third prediction focuses on another aspect of information integration, i.e. the salience of communicated assumptions. According to the model of commitment proposed in this research, a piece of information is salient to a hearer at time *t* when it is of great significance to him or when it leads to important revisions of assumptions in his cognitive environment. Salient pieces of information are what Sperber and Wilson (1995: 47) describe as information that "is more accurate, more easily retrievable, and more developed in areas of greater concern to the individual".

Each cognitive environment is different: individuals entertain different concepts, representations and memories, and they also draw different inferences (Sperber and Wilson 1995: 38). Consequently, communicated information is more or less likely to be important to one individual. Whereas linguistic cues are encoded in the utterance and are rather homogeneously treated by addressees, the salience of a piece of information is purely contextual and depends on the hearer's cognitive environment at the time of utterance production. Salience determines (at least in part) the way it is assessed and integrated by the hearer. The extent to which epistemic vigilance mechanisms are activated also depends on this relative importance, as the potential relevance of a piece of information may affect the investment of energy required by these mechanisms (Mazzarella 2013: 39). I therefore argue that the salience of the piece of information influences the processes of strength assignment, at another level than linguistic markers of certainty or the source's reliability.

In this section, I review the relevance-theoretic notions of manifestness and accessibility before moving on to some definitions of salience we find in the linguistic literature. Then, I survey experimental studies which are arguably related to the notion of salience, and finally, I present the last prediction of my model.

7.4.1 Manifestness, accessibility and salience

According to Sperber and Wilson (1995: 39), a fact or an assumption is manifest to an individual "if and only if he is capable at that time of representing it mentally and accepting its representation as true or probably true". It is construed as a psychological disposition for belief representation — and corresponds to the set of possible assumptions an individual is able to infer or perceive on the basis of an ostensive stimulus (Žegarac 1998: 331–332). Manifest facts are facts or beliefs individuals have not yet inferred or perceived but which are capable of being inferred or perceived as true or probably true (Ifantidou 2014: 102). In Sperber and Wilson's (1995: 39) words: "to be manifest, then, is to be perceptible or inferable. An individual's total cognitive environment is the set of all the facts that he can perceive or infer: all the facts that are manifest to him". Relevance Theory thus replaced the concept of knowledge, which refers to assumptions entertained by an individual, by the weaker one of manifestness (Owtram 2010: 168).

Yet, an accessible assumption is more than manifest. Recall Carston's (2002: 376) definition of accessibility, which is construed as

> the ease or difficulty with which an assumption can be retrieved (from memory) or constructed (on the basis of clues in the stimulus currently being processed); accessibility is a matter of degree and is in a constant state of flux depending on, among other things, what is occupying attention at any given moment.

Accessibility is both understood in terms of information processing as well as in terms of assumption retrieval and is believed to be gradable and context-dependent. It seems that an accessible assumption is automatically accessed. For an assumption to be possibly represented as a belief, to be even filtered by our epistemic vigilance, it needs to be manifest, i.e. cognitively "visible" to the hearer. Then, this assumption becomes more or less accessible during the interpretive process. Therefore, accessibility is a stronger, ranked version of manifestness, as shown in (112):

(112) manifestness < accessibility < salience

While a manifest assumption is only capable of being represented, an accessible assumption is first and automatically involved in the interpretive process.

7.4.2 The linguistic literature on salience

If the term "salience" is commonly used in linguistic literature, it has received little attention from a theoretical perspective. One of the rare definitions of salience is provided by Klinge (1993: 325), who construes "saliency" as "a conceived relationship between linguistic semantic input and the accessibility of our assumptions about a world situation". However, for Kisielewska-Krysiuk (2008: 47), Klinge's construal of saliency is very similar to Sperber and Wilson's (1995) notion of relevance. Indeed, Klinge claims that the most salient situation representation is derived from the most accessible assumptions activated by a linguistic semantic cue.

The relevance-theoretic framework offers two types of salience: an effort-related salience and an effect-related salience. Indeed, some contextual assumptions are accessed with less effort, while others generate greater cognitive effects. Oswald (2010: 337) argues that the more salient the assumption, the less processing effort is involved, and the more cognitive effects are generated. Conversely, the less salient the assumption, the more processing effort is involved and the fewer the cognitive effects are generated.

According to Sperber and Wilson (1995: 47), individuals aim to add "more information, information that is more accurate, more easily retrievable, and more developed in areas of greater concern to the individual". An ostensive stimulus is therefore deemed relevant if its content is presented as certain, if its source is considered reliable, and if it is accessible and related to the individual's goals. For Oswald (2010: 334), these three properties bear on the salience of the communicated piece of information. Thus, a salient assumption is an assumption which is

highly accessible and more developed in areas of concern to an individual. Indeed, the stronger the assumption, the more it will be preferred to other weaker assumptions; the more accessible, the more likely it will be chosen compared to less accessible candidates; and finally, the more related to the individual's concerns, the more "its instrumentality to fulfil some of the individual's goals will make it stand out among other less useful assumptions" (Oswald 2010: 335).

Overall, salience tends to be construed in terms of accessibility. For instance, a salient assumption is thought to be the most accessible assumption in a given context. Even though it has been stated that salience is not a sufficient condition for relevance (see Oswald 2010), it is seen as guiding the interpretive process by leading the addressee in his contextual assumption selection. Salience is construed as a comparative notion, as an unconscious process automatically taking place during utterance interpretation.

In what follows, I suggest that salience involves information which triggers great and numerous cognitive effects in the hearer's cognitive environment. It therefore applies to information which is more developed in areas of greater concern to individuals. As salience is assessed in terms of importance (rather than linguistic markers of certainty or reliability), it will impact on the level of activation of epistemic vigilance mechanisms and crucially influence hearer commitment.

7.4.3 An alternative definition of salience

New incoming information has the power to modify existing assumptions. According to Relevance Theory, a positive cognitive effect (e.g. a true conclusion, a warranted strengthening or a revision of held assumptions) is worth having because it provides us with a more accurate representation of the world (Clark 2013: 77–78, 102–103). For instance, an assertion can serve as a premise in the derivation of contextual effects (Jary 2011: 274–275). If such an input can improve our representation of the world, it can also (and crucially) degrade it (Cosmides and Tooby 2000; Sperber 2001). As Cosmides and Tooby (2000: 4–5)

acknowledge, our heavily inference-dependent cognitive architecture is endangered by representations which can be erroneous, unreliable, obsolete, out-of-context or deceptive, among other things. A false piece of information, if integrated as a data-base inference may have dramatic consequences in our cognitive environment.[63] Once it is accepted, it will be transformed through other inferences which are likely to corrupt any data in contact with it (2000: 5). Cosmides and Tooby (2000: 34) argue that

> an error in the information that serves as input to an inference program will often lead to errors in the output, which may then be fed as input into yet other inference programs. As a result, a defective representation has the power to infect any data set with which it subsequently interacts, damaging useful information in contagious waves of compounding error.

Because false inferences are such a danger to the human cognitive architecture, cognitive firewalls, such as epistemic vigilance mechanisms (Sperber et al. 2010), are believed to have evolved for the purpose of protecting it from misinformation. Indeed, epistemic vigilance mechanisms are thought to be particularly active when highly relevant information is presented or when important assumptions are contradicted (Mazzarella 2013).

This type of damage can be caused by what I propose to call "salient" pieces of information. According to Mercier and Sperber (2009: 9), there are two types of communicative situations where we are not only interested in the information *per se* but also in reasons to accept or reject it. First, as speakers, when we know that our addressee will not accept the information we provide on trust only. Second, as hearers, when the information presented by our interlocutor could be

63 A data-base inference is an inference treated as architecturally true and which can subsequently interact with any other type of data. As a reminder, architectural truth is defined by Cosmides and Tooby (2000) as follows "information is treated by an architecture as true when it is allowed to migrate (or be reproduced) in an unrestricted or scope-free fashion throughout an architecture, and is allowed to interact with any other data in the system that it is capable of interacting with".

relevant to us if it is verified but that we are not prone to accept without further assessment.

This second reason is directly linked to the notion of salience as I construe it. The processes leading an individual to look for reasons to accept or reject a given piece of information involve reflective inferences (Mercier and Sperber 2009). Contrary to intuitive inferences which are believed to be automatic, unconscious and to rely on heuristics, reflective inferences focus on reasons for accepting or rejecting an incoming piece of information. Since these inferences are conscious and effortful, they take more time to be processed (Mercier and Sperber 2009: 23–24). The main function of reflective inferences would be to generate and assess arguments which are presented to us during the conversational exchange. As a result, not all pieces of information are equal in terms of importance. Some of them are integrated in our cognitive environment without much consideration, whereas others, which are deemed more significant in terms of consequences, need reasons to be accepted (even though it is assumed we always exert some degree of epistemic vigilance towards all communicated information, see Sperber et al. 2010: 381). Therefore, I take salience to represent the importance of a piece of information for a given individual at a given time and suggest that processing it will involve extra work. Following Sperber and Wilson (1995: 47), salience refers to assumptions that are more accurate and easily retrievable, to assumptions which are more developed in areas of greater concern to the individual, i.e. to assumptions which trigger great and numerous cognitive effects.

Now, salience needs to be differentiated from relevance. Whereas relevance is a property of the set of assumptions selected as part of utterance interpretation, salience is not viewed here as dependent on the interpretive process *per se*. Salience is a property of pieces of information and triggers the information checking process which determines if their corresponding assumptions can be integrated in an individual's cognitive environment or not. Even though epistemic vigilance mechanisms are thought to be activated by any ostensive communicative act, it is suggested, in line with Sperber et al. (2010), that these mechanisms are

graded. Therefore, they will be more activated and the process of information integration will be more consciously carried out in the case of salient pieces of information. This type of information is believed to be consciously assessed and consciously accepted after a thorough and effortful evaluation.

In this view, the salience of a piece of information is situated at the level of acceptance, i.e. at the level of hearer commitment. Since a salient piece of information requires the addressee to look for reasons to accept or reject it, then it is construed as a conscious assessment of the certainty of the communicated content and of the source's reliability. Salience interacts with our epistemic vigilance mechanisms as it triggers a conscious process of information checking. Indeed, if one piece of information is found to be salient, it will consequently raise the addressee's epistemic vigilance mechanisms and suspend the integration process until the hearer decides whether to integrate it in his cognitive environment or not. Because this type of information presumably requires more cognitive effort, it would also be more time-consuming.

From this perspective, salience is information-oriented, and more specifically topic-oriented. A salient piece of information is not construed as a mere accessible assumption, but as activating important databases during information processing. The impact of a salient piece of information on a cognitive environment can thus be measured in terms of the density of the databases involved. If a piece of information is salient, it necessarily involves related and important databases in the hearer's cognitive environment. Consequently, misinformation in this case can be highly damaging to the hearer, as highlighted by Cosmides and Tooby (2000).

A salient piece of information is salient to a given individual at a given time iff it is of great significance and of great consequence for this individual at time *t* (i.e. if it yields numerous cognitive effects). In fact, this type of information is deemed important enough to require extra attention and extra caution in the processes of strength assignment. Imagine someone tells you (113):

(113) John is a thief.

If John is one of your colleagues but that you do not know him or like him more than is required by politeness, then you might be surprised and even puzzled by this statement. If the source of the information in (113) is a liar (but that you are not aware she is) and you consequently integrate the false assumption that John is a thief in your cognitive environment, this will be prejudicial to John since your representation of him will be tainted. However, it will not modify and erase a significant number of assumptions you entertained in your John database, since you probably held very few assumptions regarding John. In other words, erroneously integrating the assumption that John is a thief in your cognitive environment will not dramatically modify it. But if John is your husband, integrating a false assumption about him in your cognitive environment is much more likely to lead you to re-assess a massive number of interrelated assumptions. Since your John database is tightly linked to other ones dedicated to your family, your practical life together, your financial situation, your future and so on, the assumptions triggered by (113) may drastically change the way you think about your husband and about your life with him. The effects of the acceptance of such information are costly enough if it is true, but if it is false, the cost and consequences are even more damaging.

Salient pieces of information trigger epistemic safeguards, but first independently of linguistic markers of certainty and of the source of information. However, once a piece of information has been recognised as salient by a given individual, it will require a careful check of both the communicated content and the source of information to be accepted in his cognitive environment as a certain and reliable assumption. As a result, this salient piece of information will be assigned a high degree of strength in the hearer's cognitive environment, and it will subsequently be accessible and easily retrievable from memory.

In a nutshell, a salient piece of information is assessed in terms of importance. Salience is specific to a given individual, context-sensitive and dynamic. To integrate salient information in one's cognitive environment is costly in terms of processing effort since it is consciously assessed and it has the power to modify a great number of already held assumptions. Consequently, the hearer is likely to accept only pieces of

information which are considered sufficiently certain and reliable, i.e. strong assumptions.

7.4.4 Experimental literature on salience

From an experimental perspective, a growing body of evidence in psychology shows that using different pronouns affects the reader's embodiment or identification to the main character of a story, which can be linked to how salience is construed in this research. Experiments have provided evidence that using the pronoun *you* to describe an action (i.e. *You are slicing the tomato*) leads readers to mentally simulate the action from the performer's perspective, whereas the pronouns *I* and *he* promote an observer's perspective. According to these studies (Brunyé, Ditman, Mahoney, Augustyn and Taylor 2009; Ditman, Brunyé, Mahoney and Taylor 2010 and Brunyé, Ditman, Mahoney and Taylor 2011), the pronoun *you* cues the active simulation of events from an egocentric or first-person immersed perspective, as well as a greater engagement during action comprehension. Indeed, participants tended to consider the pieces of information as more relevant when they were presented with the pronoun *you* than with the pronouns *I* or *he*.

Specifically, Brunyé et al.'s (2009) experiments aimed to examine the effect of pronouns in the reader's adopted perspective during simple event sentences processing. In experiment 1, participants were asked to read a few lines about an event and then to verify whether a picture subsequently displayed matched or mismatched the described event. Picture-related response times were expected to be a function of the perspective taken (i.e. the pronoun *I*, *you*, or *he*), (Brunyé et al. 2009: 28). Results support the assumption that readers do not automatically mentally simulate the events described from the character's perspective. Rather, they are generally prone to rely on pronouns to guide the nature of these simulations. Experiment 2 added a short discourse context prior to event sentences to examine whether more realistic and richer descriptions would change the readers' perspective. Results indicate that in order to take the character's perspective, readers needed to

be addressed as the subject of the sentence, i.e. with the pronoun *you*, as third-person pronoun was found to cue an external perspective (Brunyé et al. 2009: 30).

Ditman et al. (2010) investigated whether participants would recall action statements better when presented with the pronoun *you*, rather than with the pronouns *I* and *s/he*. In experiment 1, participants read 3-sentence scenarios. The last sentence described an action that was either preceded by the pronoun *I*, *you* or *he* (e.g. *I am/You are/He is a 36-year old bartender cracking the coconut. I am/You are/He is making a piña colada from scratch shredding the coconut. Right now, I am/You are/He is cracking the coconut*). After performing a 10-minute distractor task, participants were asked to complete a recognition test that probed for memory of actions. Results indicate better retention, in the form of higher sensitivity and faster response times, when action statements were presented with the pronoun *you*. The same recognition test (i.e. experiment 2) took place three days later. The effects persisted, leading to the conclusion that the pronoun *you* triggers greater engagement during action comprehension and that pieces of information thus presented were more easily retrievable from memory. Crucially, the fact that participants tended to recall better information displayed with the pronoun *you* suggests that the represented action was construed as more important than pieces of information which were not ego-related.

Finally, Brunyé et al. (2011) asked participants to carefully read a series of four excerpts from a novel. Results confirmed that participants' response times and error rates to comprehension questions were lower in the *you* condition (relative to the *I* condition). Hence, the pronoun *you* triggered richer representations of the spatial organisation of narrative worlds than the pronoun *I*.

According to me, these studies offer a way to test the subjective notion of salience from a neutral perspective. Because salience varies from individual to individual, pronouns manipulation seems to be the most effective way to test it. If participants are addressed with the pronoun *you*, they are more likely to actively simulate an event from an egocentric perspective, which means that they would be likely to feel

more engaged, to perceive the presented pieces of information as more relevant and more important to them.

7.4.5 Prediction

My last prediction focuses on the salience of pieces of information, defined earlier as the importance of their corresponding assumptions and more generally as the importance of the databases activated during information processing. Salience is therefore measured in terms of impact (i.e. cognitive effects) in an individual's cognitive environment. I suggest that the greater the impact on a given individual's cognitive environment, the more carefully and consciously the processes of strength assignment will be carried out, and the stronger hearer commitment will be. Indeed, because accepting salient pieces of information in his cognitive environment could be damaging, the hearer will accept only those which are considered sufficiently certain and reliable.

The hearer's epistemic vigilance mechanisms are also likely to be highly activated in the case of salient pieces of information. As highlighted by Mazzarella (2013: 39), the potential relevance of a piece of information may affect the investment of energy required by epistemic vigilance mechanisms. Mazzarella's use of the notion of relevance seems to refer to what I call salience here. In this view, when a communicated piece of information is salient, individuals are willing to invest extra energy to decide whether they want to accept it or not in their cognitive environment. In terms of epistemic vigilance, the more salient the piece of information to a given individual at a given time, the more activated his epistemic vigilance mechanisms will be (cf. Hasson et al. 2005; Sperber et al. 2010: 363; Mazzarella 2013: 39). From a relevance-theoretic perspective, this process involves extra processing effort but is worth undergoing in the long run since such pieces of information may have pervasive and massive consequences in the hearer's cognitive environment. Conversely, if the piece of information is not salient to a given individual at a given time, then he will probably

not invest extra energy in deciding whether to integrate it or not. He will derive the speaker's meaning but this will probably not trigger any conscious and effortful checking process. Imagine someone tells a husband (114):

(114) Your wife is seeing someone else.

If (114) is conveyed by a speaker the hearer does not trust, he will not integrate it in his cognitive environment and will discard it without further considerations. Yet, if (114) is uttered by a knowledgeable, competent and benevolent speaker but that the husband is certain that his wife is faithful, then (114) is likely to disrupt assumptions entertained with great conviction in his cognitive environment. If it is uttered in a context where the hearer already suspects his wife's indiscretions, it will probably strengthen his previously weakly entertained assumptions. This communicated piece of information is thus obviously salient for the hearer since it affects a substantial number of databases involving numerous assumptions in his cognitive environment. The consequences of favouring the speaker's information instead of his previously entertained assumptions would be considerable, especially if it is false. Then, hearer commitment is carried out with greater concern and more consciously in (114) than in (115), for instance:

(115) Mr Collins is obsessed with snails.

Obviously, (114) activates more databases in the hearer's cognitive environment than (115). It is also more likely to be put under scrutiny. Once (114) has been carefully checked by epistemic vigilance mechanisms and integrated in the hearer's cognitive environment, hearer commitment is likely to be strong and the corresponding assumptions highly accessible. By contrast, if the hearer is not interested in Mr Collins's hobbies, and someone informs him that he is absolutely mad about snails, he will interpret this utterance so as to understand it but will not invest extra energy in deciding whether to accept it or not. If this assumption is revealed to be false, the consequences in the hearer's cognitive environment will be null.

7.5 Conclusion

Linguistic markers of certainty and the hearer's appraisal of the source's reliability are determining factors at the level of attributed commitment and hearer commitment. If a communicated piece of information is integrated in the hearer's cognitive environment after the linguistic markers and the source have been checked, then the derived assumptions are assigned a certain degree of strength. At the acceptance stage, in the case of salient pieces of information, information integration is likely to be consciously and carefully carried out. The subsequent hearer commitment will be necessarily strong, as only pieces of information conveying certainty and provided by reliable sources can be allowed to modify the hearer's cognitive environment. These theoretical claims translate into three experimentally testable predictions, which will be developed in Chapter 9.

Chapter 8 provides background for these three studies by briefly defining experimental pragmatics and introducing memory tasks. It also suggests a link between such tasks and the observation of commitment.

Part III Testing a new model of commitment

8 Experimental pragmatics and memory tasks

8.1 Experimental pragmatics

For years, Relevance Theory exclusively remained theoretical, supporting its main claims with linguistic intuition and introspection. However, the main principles of Relevance Theory suggest experimentally testable predictions (Wilson and Sperber 2004). Now that this domain of linguistic enquiry has undergone what Noveck and Reboul (2008) call an "experimental turn", it has been benefitting from the insight of more experimentally developed sciences such as psychology and psycholinguistics (Wilson and Sperber 2004; Noveck and Sperber 2004). Experimental pragmatics aims at a better description of the cognitive mechanisms underpinning communication by testing the validity of theoretical proposals and by contributing to more general models of human cognition (Katsos 2011; Bambini and Resta 2012). Relevance-theoretic empirical research has been conducted in various fields of inquiry, ranging from the cognitive and communicative principles to autism and its implication for communication (see Noveck and Sperber 2004, as well as Noveck and Reboul 2008 for an overview).

Before focusing on the experiments *per se*, this chapter surveys some aspects of memory tasks and offers an introduction to recall and recognition tasks. Finally, it addresses the link between commitment and memory.

8.2 Literature review on memory tasks

8.2.1 Memory

Memory is broadly defined as "the way the brain is affected by experience and subsequently alters its responses" (Siegel 2001: 998). One dimension of memory which is often mentioned in linguistics is processing. It involves three phases: encoding, storage and retrieval. Encoding describes an activation of neuronal firing resulting from the initial impact of experience, whereas storage corresponds to "the increased probability that a similar profile will be activated again" (2001: 999). Finally, retrieval is construed as the actual activation of that potential neural net profile that resembles the profile activated in the past (2001: 999).

Researchers in psychology traditionally distinguish between two types of memory: explicit (or declarative) memory and implicit (or non-declarative) memory.[64] The former type of memory requires conscious attention for encoding. It also gives the individuals the impression of recollection and is therefore verbally accessible. Explicit encoding is first processed through the initial phase of encoding in working memory and then through long-term memory.[65] Its implicit counterpart does not involve conscious processing during encoding or retrieval and does not result in the experience of recalling. Indeed, our actions, feelings and

64 The explicit side of memory is subdivided into episodic memory and semantic memory. Episodic memory refers to the memory of events such as times, places, associated emotions and other contextual knowledge that can be explicitly expressed and remembered. Therefore, it represents our memory of experiences and specific events in time. Semantic memory corresponds to general knowledge such as facts, meanings, and concepts about the external world.

65 Working memory is a short-term process, also called "immediate" memory. According to Siegel (2001: 1003), it is "the mental process involved when we say we are 'thinking about something' and allows us to reflect on the present and the past". Long-term (explicit) memory is defined in turn as "the process by which items are stored for extended periods beyond working memory" (2001: 1003).

imagination are not dependent on remembering the influence of past experience on our present reality. Implicit memory involves processes such as mental models and explains effects like priming.[66] It is usually thought to include procedural memory (for instance, knowing how to perform a certain task or procedure), (Rossi 2013: 4, Siegel 2001: 1000–1002, 1004). The experimental paradigm used in the three studies presented in Chapter 9 typically taps on explicit memory. This short overview of memory types leads us to the main point of our experimental investigation, based on remembering.

8.2.2 Remembering and memory tasks

Remembering is defined as "the construction of a new neural net profile with features of the old engram [i.e. the initial impact of an experience on the brain] and elements of memory from other experiences" (Siegel 2001: 1000). Explicit memory is said to be context-dependent as the process of reactivation of representations generally depends on the internal and external environment. The process called "ecphory" (see Tulving 1993) refers to the match between retrieval cues and memory representation (Siegel 2001: 1005), which is crucial in the recognition paradigm discussed below.

In psycholinguistics, memory tasks usually investigate how words, sentences and texts are processed by individuals. Performance on a memory task involving word or sentence recall is a function of word type (with, for instance, concrete words leading to better retention than abstract words or non-words) and propositional complexity (Polisenska, Chiat, Comer, and Mckenzie 2014: 66; Mobayyen and de Almeida 2005: 169). Furthermore, it is generally agreed that memory for syntactic structure and verbatim information decays rapidly over time,

66 As a reminder, priming is defined as "a nonconscious process whereby the facility for detecting and identifying words and other perceptual objects is improved by recent encounters with the same words or objects" (Haist et al. 1992: 692). See note 55.

because the surface-form of the sentence is retained in memory for the purpose of comprehension processes only (see Sachs's 1967 influential study on the nature of semantic encoding of sentences). Yet, memory for semantic content remains accessible longer. More recent data suggest though that the source of forgetting in short-term recall tasks is often due to interference (through a distractor task, for example) rather than to time decay (Polisenska 2014: 67).

8.2.3 Recall and recognition paradigms: A survey

Contrary to chronometric paradigms such as priming, the typical tasks used to assess participants' memory are part of non-chronometric approaches, which are known to have the disadvantage to involve metalinguistic judgments. However, recall and recognition paradigms do not involve such judgments (Derwing and de Almeida 2009: 238).

The recall paradigm is an explicit-memory test: participants are instructed to think back to a study episode and retrieve events from that episode (Nyberg and Nilsson 1995: 215). Recall tasks are mainly based on the assumption that performance in remembering (an utterance, for instance) is a function of the complexity of its semantic representation in memory. Recall tasks are divided into three main types: free, cued and serial. Free recall refers to a task where participants are presented with a list of items to memorise (e.g. words, utterances, etc.) and are then instructed to remember those items in any order. This task is subject to the primacy and recency effects: the former effect refers to better recall of the items presented at the beginning of the list, whereas the latter corresponds to better recall of those presented at the end of the list. In a cued recall task, participants are also given a list of to-be-remembered items and then are provided with cues to remember them. This task typically involves a pair of words, one of which is given as a cue to retrieve the other one. Finally, serial recall corresponds to the participants' ability to recall items in the exact order in which they occurred in the study phase (Gregg 1986: 15–16). Recall memory is considered to depend on declarative memory, which refers to memories

that are consciously recalled, such as facts (Haist, Shimamura, and Squire 1992: 691).

The recognition paradigm is also an explicit-memory test which involves presenting participants with stimuli such as words, utterances or pictures they are instructed to memorise. After a retention interval, they are shown test items and have to indicate whether they are old (i.e. previously studied) or new. Recognition memory, which is defined as a basic form of memory retrieval and which has been widely used in experimental psychology (Drosopoulos, Wagner, and Born 2005), is generally tested by either a forced-choice or a yes-no procedure. In a forced-choice procedure, the experimenter simultaneously presents participants with a target (i.e. previously studied items) and a foil (i.e. a new item) and instructs them to identify the target, that is, the word, utterance or picture that was presented in the retention interval. In a yes-no procedure, participants are shown target items and foils separately. They are asked to answer "yes" to the items they previously encountered in the task (i.e. the targets) and "no" to those they encounter for the first time (i.e. the foils), (Bayley, Wixted, Hopkins and Squire 2008). In some cases, participants' reaction times are recorded. Crucially for the purpose of this research, accuracy rates in such a task provide indications regarding the degree of accessibility of the representation of the test items. If one item is highly accessible, then the participants' response should be quick and accurate. By contrast, if the word representation is less accessible, reaction times should be slower and the participants' response should be inaccurate (Traxler 2012: 191). Recognition memory is believed to depend on both declarative and non-declarative memory. It is based on declarative memory as participants are able to consciously assess whether a previous event has occurred, but it is also based on non-declarative memory because their memory performance is affected by priming.

Recognition memory has been accounted for by the dual-process framework (among other accounts), which postulates that recognition is determined by two different memory processes. On the one hand, recollection, which is consciously controlled and involves remembering specific details about a previous event and, on the other hand, familiarity,

which is automatic and defined as an implicit process of recognition. Familiarity refers to knowing that an item was presented but may appear in the absence of any conscious knowledge about the context in which it was originally presented. The forced-choice and "yes-no" procedures are believed to assess recollection and familiarity differently. Participants would be able to discriminate an old word from a new word on a forced-choice test on the basis of familiarity only, which would not be the case in a "yes-no" task because this test involves some degree of recollection (Drosopoulos et al. 2005; Chan and McDermott 2007: 431; Bayley et al. 2008).

In what follows, I present a brief survey of studies using a recall or a recognition paradigm, and I connect them with the notion of commitment in linguistics. In my opinion, the following empirical studies establish in various ways how linguistic representations are retrieved from participants' cognitive environment and how some representations are more accessible than others depending on the linguistic markers they are embedded under. If these studies deal with different linguistic issues (such as focusing constructions, pitch accent types, focus particles, verb complexity and pronouns), their results nevertheless indicate that some cognitive processes involved in the treatment of utterances increase the accessibility of the mental representations with which they are associated.

8.3 Linguistic phenomena affecting recall and recognition

This section starts with focusing constructions such as *It was Fitzwilliam who really loved Elizabeth* (vs *Fitzwilliam really loved Elizabeth*). Focusing constructions are thought to determine to some extent the degree of activation assigned to different parts of the situation model (see Johnson-Laird 2008). Focusing constructions lead to different results than their non-focused counterparts in recognition and recall tasks. Focused parts of text seem to benefit from higher level of activation, i.e. they seem to enhance the relative accessibility of concepts (Traxler

2012: 219; Birch and Garnsey 1995: 234). Focused elements are thus privileged in memory representation since they have been found to be remembered with higher accuracy and represented at a more salient pragmatic level (Spalek, Gotzner and Wartenburger 2014: 69). Therefore, focused elements provide evidence for a pragmatic accessibility effect captured within a recognition paradigm.

Fraundorf, Watson and Benjamin (2010) used a forced-choice recognition memory to test whether differences in pitch accent type affect memory in language comprehension. Participants listened to 48 prerecorded discourses in which there were: a) a short context passage followed by b) a continuation. For example, participants listened to the following story:

a) Both the British and the French biologists had been searching Malaysia and Indonesia for the endangered monkeys.
b) Finally, the (British/French) spotted one of the monkeys in (Malaysia/Indonesia) and planted a radio tag on it.

Focus was achieved through phonology: the continuation (i.e. b) contained a non-contrastive or a contrastive pitch accent on the critical word (in the example given above, *British* or *French* and *Malaysia* or *Indonesia*). After 30 minutes, participants' memory for each little scenario was serially tested. Each story was displayed on a computer screen as follows:

> Both the British and the French biologists had been searching Malaysia and Indonesia for the endangered monkeys.
> Finally, the _____ spotted one of the monkeys in _____ and planted a radio tag on it.

Results of this forced-choice recognition study show that words receiving a contrastive accent were remembered better than words receiving a non-contrastive accent (Fraundorf et al. 2010: 372).

Spalek et al. (2014) investigated the effect of focus particles (*nur* and *sogar*, in German, i.e. *only* and *even* in English) on encoding and memory of the focus alternatives. They tested whether focus sensitive particles would strengthen the mental representation of focus

alternatives (Spalek et al. 2014: 77). Their first experiment was intended to tease apart two alternative accounts: the lexical meaning hypothesis and the contrast hypothesis. The first hypothesis postulates that inclusive particles (i.e. *even*) mark the alternatives to be part of the prediction, whereas exclusive particles (i.e. *only*) indicate that the alternatives to the focused constituent do not hold. In other words, memory for alternatives should be enhanced when the alternatives are highlighted by an inclusive, while it should be reduced in the case of exclusives. Alternatively, the latter hypothesis suggests that both conditions with focus operators might lead to better recall of the alternatives than in the control condition. In this experiment, participants were presented with the following type of stimuli:

> Peter watches zebras, lions and monkeys in the zoo. He wanted to remember that.
> He _/only/even/ took pictures of monkeys.

Results indicate that the presence of a focus particle affected the recall performance for alternatives. Participants were more likely to remember that Peter watched zebras, lions as well as monkeys when the continuation contained a focus particle than if did not. However, the distinction between inclusive and exclusive focus particles had no effect on recall (Spalek et al. 2014: 73). Experiment 2 replicated the first results, thereby supporting the contrast hypothesis (2014: 75). Overall, the data support the assumption that alternatives are better encoded in memory in the presence of a focus sensitive particle.

Focus is not the only linguistic phenomenon that has an impact on utterance processing. The following studies also examine how part of an utterance (for instance, the type of verb or a given pronoun) affects the way a piece of information is retrieved from memory.

Mobayyen and de Almeida's (2005) study investigates the effect of verb classes on propositional complexity. They manipulated the semantic complexity of the verbs in 36 sentences. Sentence recall was expected to be a function of the morphological and semantic complexity of the main verb. Better recall would therefore suggest that more complex verbs generate stronger memory encoding, and thus that they are easier to remember than semantically simplex items. To test this hypothesis,

Mobayyen and de Almeida (2005) used two semantically complex classes (lexical and morphological causatives, e.g. *grow* and *fertilize*) and two semantically simplex classes (morphologically simplex and complex perception verbs, e.g. *smell* and *re-smell*). Results suggest that participants recalled whole sentences with semantically complex verbs (e.g. causatives) better than they recalled sentences containing simplex verbs (e.g. perception verbs). Therefore, complex verb concepts seem to create stronger memory codes than semantically simplex verbs, thereby facilitating recall. This conclusion is at odds with the mainstream view that propositional complexity affects sentence recall in the opposite way (Mobayyen and de Almeida 2005: 171).

To conclude this brief survey, let us consider again Ditman et al. (2010)'s research. It examined the resulting memory representation of action statements after participants read a list of utterances presented with three different pronouns (i.e. *I*, *you*, and *he*, see also Brunyé et al. 2009 and 2011). In experiment 1, participants read 3-sentence scenarios in which a final sentence described an action that was either preceded by the pronoun *you*, *he*, or *I* (e.g. *I am/ You are/ He is a 30-year old deli employee. I am/ You are/ He is making a vegetarian wrap. Right now, I am/ You are/ He is slicing the tomato*). After reading the 24 scenarios, participants were given a 10-minute distractor task (involving arithmetic problems). Finally, they completed a recognition test that probed for memory of actions. Results indicate better retention and faster response times when action statements were presented with the pronoun *you*. Experiment 2 tested recall three days later: the same effects were observed. Ditman et al. (2010) conclude that the pronoun *you* triggers greater engagement during action comprehension. Thus, ego-related information was perceived as more important than other pieces of information.

8.4 Conclusion

These experimental studies provide evidence that a single component or aspect of an utterance (e.g. focusing constructions, pitch accent, focus

particles, verb types and pronouns) have an effect on how information is encoded, stored and retrieved by participants. These linguistics markers are shown to significantly affect recall or recognition. Crucially, these studies suggest that information storage might be done at various degrees of strength. It is thus hypothesised that commitment markers affect processing in the same way, via the notion of cognitive strength. As predicted by the model of commitment presented in Chapter 6, it is posited that a) linguistic markers of certainty (e.g. plain assertions, epistemic modals and certain evidential expressions), b) the hearer's assessment of the speaker's and/or reported speaker's reliability, and c) the salience of a piece of information have an impact on information processing. In line with the previously presented studies, it is claimed that this impact on information integration can be measured within a recall paradigm and, more specifically, through a yes-no recognition task.

I posit that there is a link between the relevance-theoretic notion of strength and individuals' memory. Following Sperber and Wilson (1995: 77), it is argued that each assumption is assigned a degree of strength which crucially affects its relative accessibility.[67] They claim that "the strength of an assumption is a property comparable to its accessibility. A more accessible assumption is one that is easier to recall" (1995: 77). In this research, strength is thought to be the cognitive counterpart of commitment and is determined by the certainty of the communicated content and its source's reliability. Thus, hearer commitment is hypothesised to influence how information is stored in the individual's cognitive environment.[68]

As mentioned earlier, accuracy rates in the recognition paradigm are construed as providing evidence with respect to the accessibility of the representation of the test utterances (Traxler 2012: 191). Research has established that participants' memory was sensitive to certain linguistic phenomena modulating the accessibility of assumptions (i.e. focus

67 As a reminder, accessibility is defined by Carston (2002: 376) as "the ease or difficulty with which an assumption can be retrieved (from memory) or constructed (on the basis of the clues in the stimulus currently being processed)".

68 Attributed commitment also plays a role in how information is stored in a cognitive environment given that it partly determines hearer commitment.

constructions, pitch accent, focus particles, the complexity of the verb and pronouns). Hence, one aspect or part of the utterance is suggested to affect encoding, storage, and retrieval of its associated representation. In the same vein, I claim that the certainty of the communicated information, the speaker's reliability, and its salience determine the degree of strength assigned to its corresponding assumptions, which in turn will affect the accessibility of its corresponding assumptions and eventually have an impact on recall. Therefore, I posit that linguistic markers of certainty and of reliability as well as markers of salience act like the linguistic phenomena just discussed.

The more a piece of information is certain, reliable and salient, the higher the strength of its corresponding assumptions is and the more accessible these assumptions are in the hearer's cognitive environment. From an experimental perspective, participants are expected to perform better in a recognition task when they are presented with certain, reliable and ego-related statements because those are predicted to be stored in their cognitive environment with a higher degree of strength. As a result, certain, reliable, and salient pieces of information should affect the storage of their corresponding assumptions in such a way that they will be highly accessible during a recognition task, thereby triggering higher recognition scores than their uncertain, unreliable and non-salient counterparts.

In what follows, I present three experimental studies which test the effect of linguistic markers of certainty, speaker's reliability and salience of a given piece of information on strength assignments in one's cognitive environment.[69]

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69 These experiments are the result of a fruitful collaboration with Prof. Napoleon Katsos (University of Cambridge, UK) and Prof. Didier Maillat (University of Fribourg). The research leading to these experiments was funded by a Doc. Mobility fellowship from the Swiss National Science Foundation, obtained for the project entitled "Are you committed? A pragmatic account of commitment".

9 Three experimental studies

This chapter is devoted to the presentation of three experimental studies, whose aim was to test whether linguistic markers of certainty, the speaker's reliability and the salience of a given piece of information impact on strength assignments in one's cognitive environment. While studies related to the notions of certainty and reliability overviewed in Chapter 7 focused on children and implied face to face interaction (see Moore and Davidge 1989; Sabbagh and Baldwin 2001; Jaswal et al. 2007; Stock et al. 2009; Bernard et al. 2012; Mercier et al. 2014 and Dudley et al. 2015 for certainty; and Koenig and Echols 2003; Clément et al. 2004; Koenig and Harris 2007; Southgate et al. 2010; Sobel et al. 2012 and Stewart et al. 2013 for reliability), the experiments proposed in what follows test adult participants with an online explicit memory task. Different recognition tasks were designed to investigate the effect of certainty, reliability, and salience on participants' memory.

Each section will briefly discuss the methodology and procedure applied to assess the three predictions made in Chapter 7. I will conclude by discussing the main results of the experiments and the implications with respect to the present proposal.

9.1 Linguistic markers of certainty

9.1.1 Study 1a

The first prediction that arises from our discussion concerns linguistic markers of certainty such as plain assertions, epistemic modals and

evidential expressions, which give indications with respect to the degree of certainty expressed by the communicated content. It is posited that the more the speaker presents her information as linguistically certain, the more likely the hearer is to attribute a strong commitment to the speaker. He will then be more inclined to integrate this piece of information in his cognitive environment with a high degree of strength (*modulo* the different predictions presented below). This is also in line with theoretical claims about epistemic vigilance mechanisms, as the more certain the piece of information is, the less activated the hearer's epistemic vigilance mechanisms are, and the more likely its acceptance will be (see Moore and Davidge 1989; Sabbagh and Baldwin 2001; Jaswal et al. 2007; Sperber et al. 2010; Bernard et al. 2012 and Mercier et al. 2014; inter alia).

A link is posited between the notion of cognitive strength and how individuals process utterances. According to the model of commitment presented in Chapter 6, an utterance conveys more or less certainty, which is translated into the hearer's cognitive environment as corresponding degrees of strength. As a reminder, Sperber and Wilson (1995: 77) equate the strength of an assumption to its accessibility. Furthermore, in memory tasks such as recognition tests, accuracy rates are known to provide evidence as to the accessibility of a given representation. In this perspective, an assumption which is assigned a high degree of strength will be likely to be more accessible during a recognition task and therefore to be more easily retrieved from memory than an assumption with a lower degree of strength. Consequently, within a recognition paradigm, participants are expected to perform better in the case of statements conveying high certainty as opposed to information conveying low certainty or uncertainty.

To test this hypothesis, 3 different groups of linguistic markers (namely, non-commitment, weak commitment and high commitment markers) were manipulated. These specific linguistic items were selected on the basis of the results of a pre-test, involving 41 native English speakers who ranked a list of linguistic expressions according to the certainty they conveyed. The selected items per category are shown in Table 1.

Table 1: Results of the pre-test: 3 categories of commitment markers

Non commitment markers	Weak commitment markers	High commitment markers
I am unsure whether	I guess that	Obviously
I don't know if	I think that	It is clear that
I have no idea if	I assume that	No doubt
Nobody knows	Probably p	Clearly
I'm not sure	Presumably p	Truly
I hope	Is likely to p	We all know that
Maybe	I reckon that	Actually
May be	I believe that	For sure
It is possible that	I would say that	I know that
Perhaps	It seems that	Plain assertion: John is *p*

The influence of these markers was tested on a recognition task presenting facts about a fictional crime narrative (e.g. *The young cook entered the kitchen* or *Mr Black called his old mother*). In a nutshell, the recognition test consisted of a list of 30 statements, half of which were "old" (i.e. the statements were previously studied by the participants) whereas the other half were "new". The last word of each statement remained unchanged in the "old" condition but it was modified in the "new" condition (e.g. *garden* and *father* were used instead of *kitchen* and *mother*). According to the first prediction of the model, participants should be able to recognise the old words *kitchen* and *mother* or to discard their new counterparts *garden* or *father* in the recognition test better if the statement is presented with a high commitment marker.

These last words were selected based on their length, part of speech, and frequency. 10 statements were presented with a high commitment marker (e.g. *I am sure that p*, *I know that p* or a plain assertion), 10 with a weak commitment marker (*I guess*, *I think*, *I reckon*, for instance) and 10 with a non-commitment marker (such as *I don't know that p*, *maybe*,

I hope that p). Half of the statements were designed to elicit a "yes" response to the recognition test (i.e. to be recognised by the participants) and the other half a "no" response.

97 English speaking participants took the online survey and were told that they would read statements the police got from a witness, regarding a crime committed in Mr Black's house. They were instructed to carefully read the statements before rating them according to the degree of certainty they expressed on a 5-point Likert scale. Following Ditman et al. (2010), a delay was placed between the study phase and the recognition test with a distractor task (i.e. 60 simple arithmetic questions), which approximatively took 10 minutes to perform. The whole experiment lasted 15 to 20 minutes.

Then, participants performed the yes-no memory recognition task where the last word of each statement was manipulated according to the old-new experimental conditions (e.g. *I am unsure whether the old lady found a picture-OLD*/*paper-NEW* or *The butler clearly moved to the North-OLD*/ *South-NEW*). The instructions explained that participants would be presented with the question "Did the witness say the following to the police?", which was followed by a fact such as *Mrs Lily loved dark chocolate*. Participants had to indicate whether it was one of the statements they previously read in the study phase or not. They were also instructed to tick the "yes" box only if the statement was exactly the same and that they should answer "no" only if the statement was not exactly the same (if they were presented with *Mrs Lily loved white chocolate*, for instance). If participants correctly ticked "yes" when the statement was "old", it was scored as a correct answer whereas if they incorrectly pressed "yes" when it was a "new" statement, it was recorded as an incorrect answer. The structure of study 1a is presented below in Figure 3.

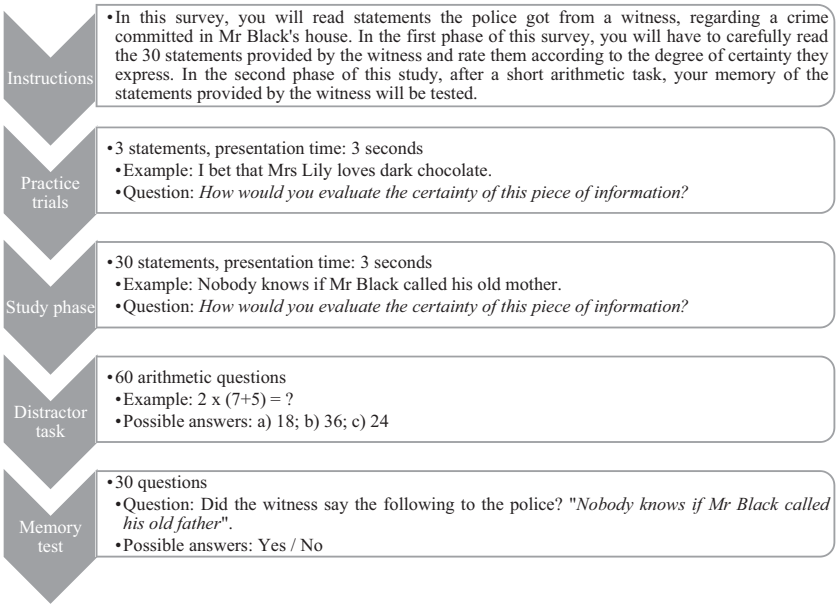

Figure 3: Structure of study 1a

As mentioned above, better recognition was expected if the piece of information contained a high commitment marker rather than a non-commitment item. More specifically, a graded structure across the categories was predicted, that is, linguistic markers of weak commitment were expected to differ from the non- and high commitment markers in terms of recognition. Recognition memory was thus analysed as a function of the degree of certainty conveyed by commitment markers.

The probability of correct answers in the recognition task in each category of commitment markers is shown in the following

results: non-commitment category (0.64), weak commitment category (0.66) and high commitment category (0.71), as illustrated in Figure 4.[70,71]

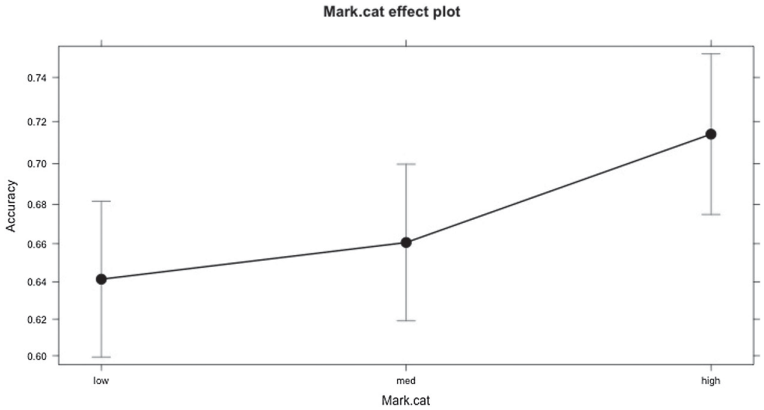

Figure 4: Accuracy rates per commitment category (experiment 1a)

Given these results, we can say that commitment marker categories affect accuracy in the recognition task. Indeed, Figure 4 shows a slight increase in accuracy between the non-commitment and the weak commitment categories.[72] Even though there is no statistically significant difference between the two categories, the expected graded structure is visible. Also, the results point to a significant difference between the non-commitment and high-commitment conditions.

There is one possible explanation as to why weak commitment is only slightly higher than non-commitment. When participants rated the linguistic markers of certainty during the study phase, there was

70 We used R (R Core Team, 2016) and the lme4 package (Bates, Maechler and Bolker, 2015) to run a generalised linear mixed effects analysis of the relationship between commitment markers and accuracy in a recognition task.

71 For a more detailed discussion of the experimental designs and of their results, see Boulat (2018).

72 The weak commitment category is labelled “med” for medium in the graph.

a major overlap with either the categories of non-commitment or high commitment markers. Indeed, weak commitment was not perceived as a clear-cut category. This observation might explain why the accuracy rate linked to the weak commitment items was not significantly higher than the one of the non-commitment category.

However, study 1a does seem to confirm the hypothesis that linguistic markers of high certainty are represented with a higher degree of strength in an individual's cognitive environment than their low certainty counterparts, as they are more accessible during a recognition task. Indeed, the results indicate that statements containing a high commitment marker were recalled significantly better than statements containing a non-commitment marker. This result is in line with the predictions made and compatible with a commitment effect on cognitive strength.

Still, further analyses revealed a possible interaction between statement length and accuracy rates. Since literature on recall and recognition shows that longer items are harder to remember than shorter ones, it is possible that participants' high accuracy rate in the high-commitment condition was due to the reduced length of these specific statements (and not to the fact that information conveying certainty is recalled better than information conveying uncertainty). To address this possible limitation, study 1b was designed, where length was controlled across the different categories of linguistic expressions.

Moreover, the potential criticism that study 1a was task-specific also had to be addressed. Since participants were explicitly asked to rate the degree of certainty of the linguistic markers after reading them in a statement, the instructions may have made the aim of the study too obvious, possibly biasing the participants' processing of the to-be-recalled statements. To overcome this problem, the ranking task was removed from the follow-up study.

9.1.2 Study 1b

133 native English-speaking participants took the online survey, containing the same 30 short factual statements used in study 1a.

Participants were given similar instructions except that they did not have to rank the certainty of the statements provided in the study phase. Otherwise, the practice trials, the study phase, the distractor task and the memory task were all identical to those in study 1a.

As shown in Figure 5, a similar statistical analysis revealed the probability of correct answers in the recognition task in each category of commitment markers: non-commitment category (0.61), weak commitment category (0.61) and high commitment category (0.65).

According to these results, commitment markers affect accuracy in this recognition task, thereby suggesting that they significantly impact on utterance processing. Figure 5 shows a slight increase in accuracy between the non-commitment and the weak commitment categories.[73] Even though there is no statistically significant difference between the two categories, the expected graded structure is visible.

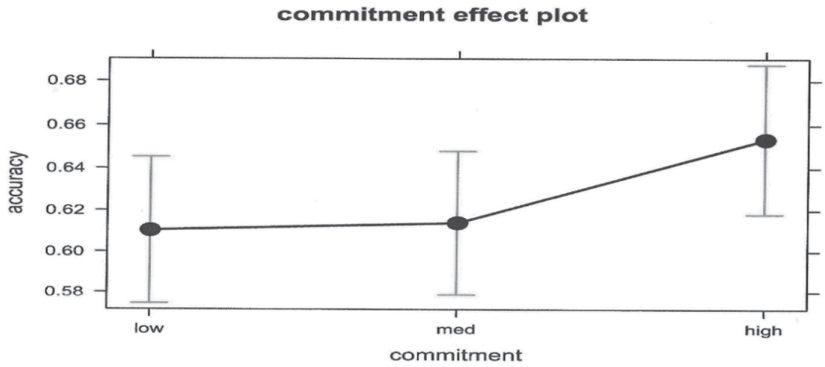

Figure 5: Accuracy rates per commitment category (experiment 1b)

Most importantly, the present results replicate the findings in study 1a, indicating that participants encode certain statements differently than uncertain ones. As can be observed in the graph above,

73 The weak commitment category is labelled "med" for medium in the plot below.

the participants' performance was significantly affected by commitment markers of certainty. Once the ranking task removed and the stimuli controlled for length, there is still a significant difference between the two categories of non-commitment and high commitment in terms of accuracy of recognition, even though the observed effect is weaker than in study 1a. Specifically, results show better retention of statements when participants were presented with a high commitment marker than with a non-commitment marker. However, weak commitment markers do not seem to be good predictors for accuracy in this task, just as in the previous study. Once again, this might be explained by the fact that participants did not perceive weak commitment as a clear-cut category.

As we saw earlier, Relevance Theory claims that pieces of information conveying certainty are integrated in the hearer's cognitive environment with a high degree of strength, thereby making their corresponding assumptions more accessible. According to the literature on recall and recognition surveyed in Chapter 8, if an assumption is highly accessible in an individual's cognitive environment, it will trigger high recognition scores. Following this line of reasoning, the findings in study 1b are believed to confirm the cognitive underpinnings of commitment. That is, degrees of commitment derived from a given utterance translate into assumptions which are assigned degrees of strength in the hearer's cognitive environment. Study 1b indeed shows that statements containing a high commitment marker generate higher recognition scores than their low commitment counterparts. These results suggest that one of the two parameters which determine commitment (i.e. certainty) has an impact on how participants remember statements. These findings are in line with the first prediction of the model of commitment presented in Chapter 6, which posits that commitment determines the strength of the contextual assumptions derived from the interpretation of a given utterance. Therefore, this model successfully predicts a cognitive impact on the processing of utterances as a function of commitment markers, specifically certainty markers.

The impact on participants' memory of the second parameter which determine commitment, i.e. the source of information, is tested in the following studies.

9.2 The source of information

9.2.1 Study 2a

The second prediction concerns the hearer's appraisal of the speaker's reliability. It was claimed in Chapter 7 that a hearer is more likely to integrate in his cognitive environment a piece of information provided by a reliable source than by an unreliable one. Therefore, it is posited that the more reliable the source of information, the more likely her communicated piece of information will be integrated with a high degree of strength in the hearer's cognitive environment. Following the reasoning of the previous study, it is argued that statements uttered by a reliable source in a recognition task will be assigned a high degree of strength in the participants' cognitive environment. As mentioned earlier, since strength is thought to proportionally translate into accessibility in a recognition task, the corresponding assumptions will tend to be more accessible and hence more easily recognised that their unreliable counterparts. Consequently, participants are expected to perform better when the statements are communicated by reliable sources than when they are provided by unreliable ones.

To test this second hypothesis, two different groups of sources (reliable vs unreliable) were created. These two sets of items were selected on the basis of the results of a pre-test, involving 37 native English participants who ranked 38 adjectives qualifying a source of information's reliability (e.g. *truthful, sincere*) or unreliability (e.g. *misleading*, *deceitful*). The selected items are shown in Table 2.

Table 2: Results of the pre-test: adjectives used in study 2a

Unreliable source adjectives	Reliable source adjectives
Deceitful	Conscientious
Dishonest	Believable
Evil	Competent
Disloyal	Respectable
Misleading	Forthright
Devious	Reliable
Unreliable	Dependable
Selfish	Sincere
Incompetent	Loyal
Calculating	Truthful

The influence of reliable and unreliable sources was tested on a yes-no memory recognition task presenting 20 factual statements identical to those in study 1. They were inserted as reported speech in a matrix clause evaluating the reported speaker's reliability (e.g. *Daniel, who is dishonest/honest, told me that Mr Black accepted a bill-OLD/check-NEW*). According to the second prediction of the model, participants should be able to recognise the old word *bill* or to discard its new counterpart *check* in the recognition test better if Daniel is described as *honest* rather than *dishonest*.

The recognition test contained 20 trials of statements, half of which were "old" and half of which were "new". 10 statements were communicated by a reliable source (i.e. a name paired with a reliability-related adjective, e.g. *Mary, who is reliable, told me that the French took a knife*) and the other 10 were provided by an unreliable one (i.e. a name coupled with an unreliability-related adjective, e.g. *Mary, who is unreliable, told me that the French took a knife*). The memory task then followed the same procedure as in study 1.

86 English speaking participants took the online survey. The procedure was the same as in study 1b, except that there were only 20 statements. It was followed by the same distractor task. The overall structure of this second study is shown in Figure 6.

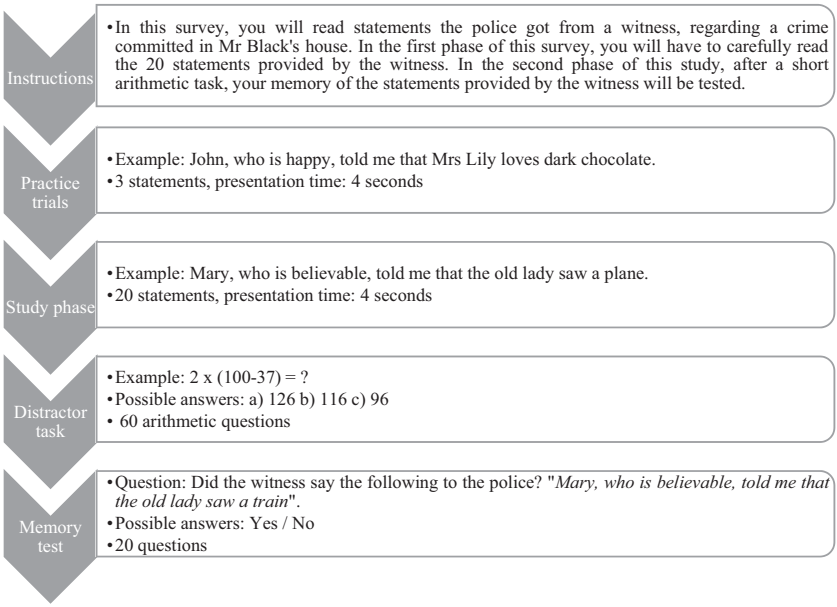

Figure 6: Structure of study 2a

Participants accurately answered 65.1 % of the time when the statements were provided by an unreliable source. When they were presented with facts conveyed by a reliable source, the accuracy rate of the recognition task was of 64.7 %. Thus, there is no statistically significant difference in terms of accuracy between the two conditions.

These results show that participants did not perform better in the recognition task when a statement was provided by a reliable source than when it was uttered by an unreliable one. However, the lack of effect might potentially be attributed to the experimental design itself. Indeed, presenting the reliable and unreliable sources of information as reported speakers and having 20 different sources uttering 20 different statements might have been perceived as unusual and repetitive. Furthermore, the typical structure of the statements did not provide the participants with sufficient information to create a mental representation of the source. Finally, the length of the experiment and the number of

sources of information may have led the participants to consider the end of the utterance only, thereby treating every statement in a similar way without taking the source into account. Overall, the accuracy rate was relatively good in both conditions and above chance, so participants did not answer randomly. Rather, they seemed to process all the statements in the same fashion, regardless of the source.

Consequently, a follow-up study was devised, wherethe number of speakers was reduced to facilitate the participants' identification of a given source's reliability. In addition, the new design had to meet two further requirements: on the one hand, the participants had to clearly understand that one source was reliable and that the other one was not; on the other hand, the design had to avoid being too obvious and dichotomous. In the studies mentioned earlier (e.g. Koenig and Echols 2003; Clément et al. 2004; Koenig and Harris 2007; Southgate et al. 2010; Sobel et al. 2012 and Stewart et al. 2013), the source of information displays her reliability or unreliability by repeatedly providing accurate or false information, by behaving coherently or incoherently regarding previous information, or by linguistically marking her certainty or uncertainty. However, most of these studies were investigating effects of reliability on children, hence dichotomous characters in that context made sense. Yet, this research deals with adult participants who answered an online survey: face-to-face interaction was not an option and a large set of sources being repeatedly reliable or unreliable had not triggered convincing results in the previous study. Furthermore, it was feared that such a dichotomous task would encourage participants to consider the statements uttered by the unreliable source as misinformation, leading them to discard them. So, to overcome these shortcomings and the potential difficulties mentioned above, study 2b was set up.

9.2.2 Study 2b

33 native English speakers were presented with two sources of information, i.e. Mary and Nora. In half of the trials, Mary and Nora provide reliable information. In this study, following the literature on evidentiality

(see Chapter 4), reliable information is directly acquired information, as in *Nora told us that Mr Black went to the bank. She met him there*. In the other half of the trials, Mary and Nora provide unreliable information (i.e. indirectly acquired information, e.g. *Mary told us that the actress waited for her friend. Mary was not with her at that moment*). Statements were presented to the participants for 3 seconds (e.g. *Nora told us that Mr Black went to the bank*) and were directly followed by a second page containing additional information, which could be read at the participants' own pace (e.g. *She met him there*). The additional piece of information did not repeat the statement or anything about the critical word so it could not strengthen its memorisation. It only gave implicit information about the source's reliability.

The recognition test contained 20 statements, half of which were "old" and the other half "new". 10 statements represented reliable information acquired via direct perception (e.g. *Mary told me that the old lady saw a plane. They looked at it together*) whereas the other 10 presented unreliable information, which was indirectly acquired (e.g. *Mary told me that the old lady cut her hand. Mary was not with her at that moment*). The memory task then followed the same procedure as in study 2a, except that after being instructed to carefully read the 20 facts provided by the police, the participants were informed that the statements would be followed by additional information. The nature of the source of the statements was modified as well. The statements were not provided by a witness but by the police, since it was pointed out that participants might be led to mistrust the statements because the witness could be perceived as unreliable. Another requirement was included: participants had to answer a question at the end of the survey about the author of the crime committed in Mr Black's house. This question was included to increase the relevance of the task and therefore to make sure that the participants would process all the statements. The overall structure of experiment 2b is shown in Figure 7.

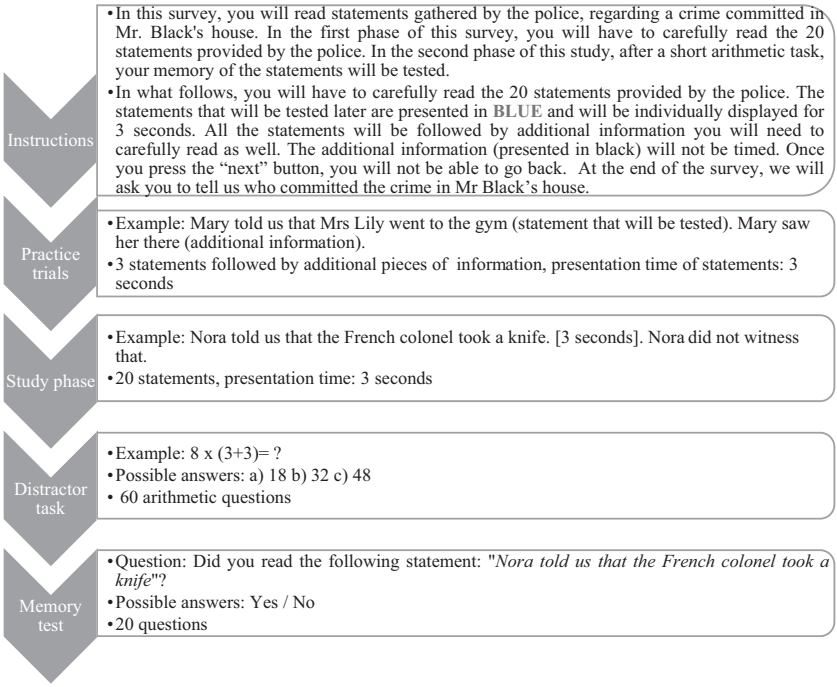

Figure 7: Structure of study 2b

When the participants were asked to perform a recognition test on utterances provided by the unreliable source, they accurately answered 71.5 % of the time, whereas when they were presented with utterances conveyed by a reliable source, the results of the recognition task showed an accuracy rate of 72.4 %. Again, the difference between the two conditions is not statistically significant. These results suggest that participants treated all statements in the same fashion.

If studies 1a, 1b and 2a were based on a one-step process (i.e. encoding a piece of information), this study was about a two-step process (i.e. encoding a piece of information and then revising that initial representation to reflect the newly acquired knowledge about the source). The former studies consider that the strength of an assumption is affected at the time of encoding, whereas the latter study hypothesises

that strength can be affected *post hoc*. Yet, results indicate that the experimental manipulation did not impact the processes of strength assignment in that fashion and that reliability, as constructed in this design, is not a good predictor for accuracy.

Once more, this lack of effect might be attributed to the experimental design. The instructions may have encouraged participants to process all the statements similarly and to discard the additional information, or they may have led them to consider the source of information only and disregard the statements. In both cases, this could explain why strength was not assigned *post hoc* on the basis of the inferred source's reliability.

In the studies reviewed in Chapter 7 (for instance, Jaswal et al. 2007 and Stock et al. 2009), reliability is often marked at the utterance level with a certainty marker (such as *I know* or *I think*). Since the model proposed here distinguishes between certainty, which concerns the communicated content, and reliability, which mainly applies to the source of information, this type of linguistic marking could potentially introduce some confusion between the two types of commitment markers.

In the follow-up experiment, it was therefore decided to encode reliability outside of the target utterance. This goal was achieved by placing a percentage of reliability next to the statement that had to be remembered.[74]

9.2.3 Study 2c

128 native English speakers took the online survey where the source's reliability was represented as a percentage directly placed next to the statement. Participants were told that various witnesses provided the police with different pieces of information regarding a crime committed in Mr Black's house. The instructions stated that the police had evaluated the source's reliability for each piece of information on a reliability

74 This idea was suggested to me by Dr. Pascal Gygax in a personal communication.

scale and that information below 30 % on that scale was regarded as unreliable, whereas information above 70 % was considered reliable.

The recognition test contained 20 statements, half of which were "old" and the other half "new". Fifty percent of the statements were communicated by a reliable source (i.e. presented with a percentage above 70 %) whereas the remaining 50 % were provided by unreliable sources (i.e. presented with a percentage below 30 %). In the recognition task, participants were asked "Did you read the following statement: *The French colonel broke his arm*"? Half of the trials were designed to elicit a "yes" response and the other half a "no" response.

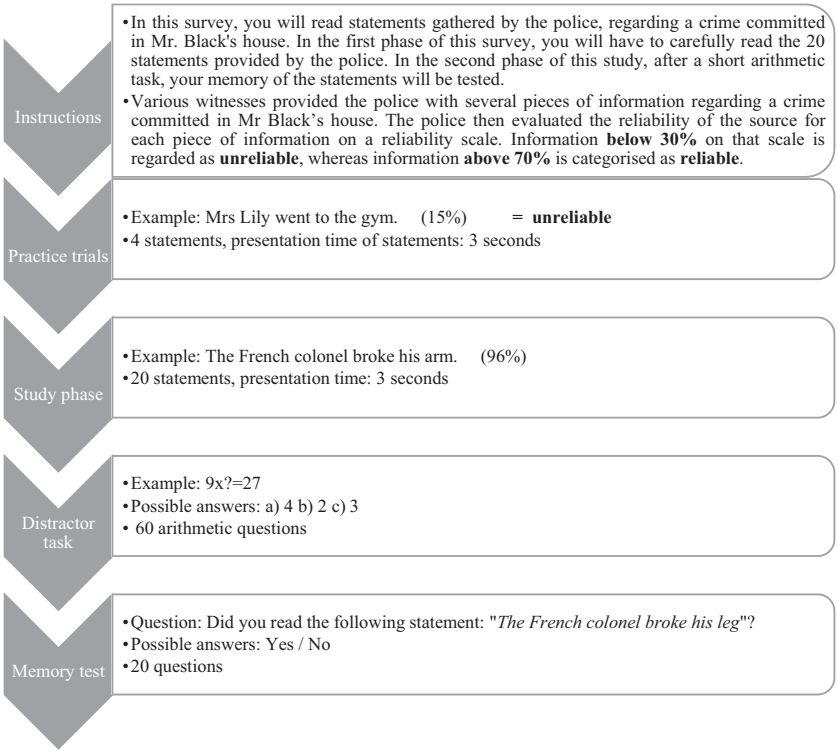

Figure 8: Structure of study 2c

The procedure was the same as in study 2b, except that the statements were neither embedded under a reported speech construction nor followed by additional information. The distractor task, the recognition test and the last question about the identity of the murder were identical to those in study 2b. The overall structure of this last study about the source's reliability is shown in Figure 8.

Applying the same statistical analysis, the two categories "unreliable" and "reliable" were found to be good predictors for accuracy in this recognition task. The model provides us with the probability of correct answers in the recognition task in each category of source reliability: unreliability (0.67) and reliability (0.74). Given these results, we can say that the source's reliability affected accuracy. Figure 9 shows the increase in accuracy between the unreliable and reliable conditions.[75]

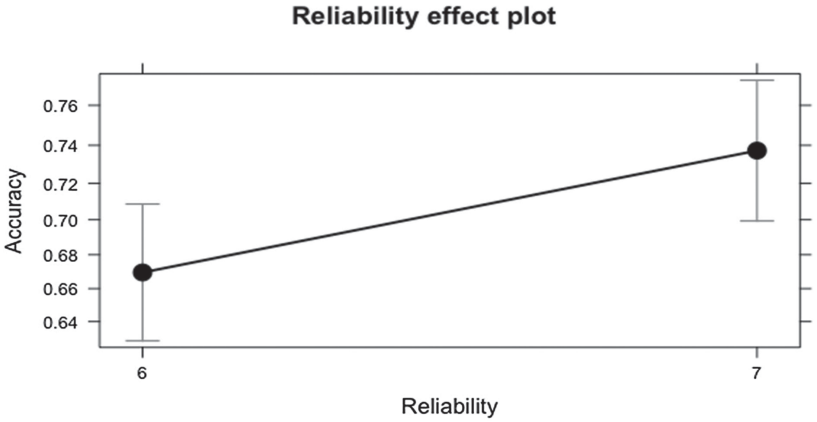

Figure 9: Accuracy rates and reliability categories in study 2c

These results indicate that participants encoded information provided by a reliable source of information differently than when it was conveyed by an unreliable one. This last design seems to better capture how individuals assess the speaker's reliability in everyday

75 The unreliable condition is labelled "6" in the graph and reliable "7".

communicative exchanges as it encapsulates reliability judgments in externally available information. That is, individuals tend to be more sensitive to contextual assumptions (in this case, an overall impression of reliability), rather than to dynamically derive reliability judgments based on linguistically encoded information.

In this sense, results of study 2c show that reliability is not necessarily conveyed by a linguistic marker in the utterance itself. As mentioned earlier, studies investigating the effect of the speaker's reliability on children (see Jaswal et al. 2007 or Stock et al. 2009, for instance) often mark reliability at the utterance level with a certainty marker such as *I know* or *I think*. In study 2c, reliability was not encoded at the level of the utterance. Since reliability judgments are nearly automatic in everyday communicative situations (see Todorov et al. 2009), it made sense to present participants with a statement and the assessment of its source's reliability altogether, in the form of a percentage.[76]

This proposal posits that commitment is determined by the certainty of the communicated information and by its source's reliability. Commitment is then translated into cognitive strength in the hearer's cognitive environment. In study 2c, statements provided by a reliable speaker generated higher recognition scores than those uttered by an unreliable one. The results suggest that the second parameter determining commitment (i.e. reliability) has also an impact on how participants remember a statement in a recognition test.

From a relevance-theoretic perspective (Sperber and Wilson 1995: 77), the strength of an assumption affects its relative accessibility. Therefore, I interpret these results as indicating that the more reliable the source of a statement is, the higher its assigned strength is in an individual's cognitive environment, and the higher its accessibility is, leading to better scores in a recognition paradigm.

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76 It has been pointed out to me that despite the instructions, participants may have interpreted the percentage as the degree of certainty of the communicated content. This possibility should be considered in future research.

Experiments 1b and 2c suggest that certainty and reliability are two separate components of commitment. Indeed, the statements presented to the participants in experiment 2c were all plain assertions, which convey high certainty. However, when a statement conveying certainty was provided by a reliable source of information, it was remembered better than when an equally certain statement was uttered by an unreliable source of information. These results indirectly confirm the second prediction regarding the hearer's assessment of the source of information. I hypothesised that the hearer's assessment of the source of information would override his evaluation of certainty markers at the level of hearer commitment. Indeed, even though all the statements conveyed high certainty, some of them triggered lower recognition scores. Thus, it can be claimed that statements uttered by unreliable speakers were assigned a lower degree of strength in the participants' cognitive environment and that they were subsequently less accessible during the recognition task.

To conclude, studies 1b and 2c show that a cognitive trace of commitment surfaces in recognition tasks, as predicted by the model presented in Chapter 6. These studies validate the claims about the two main components of commitment (namely, certainty and reliability) and their cognitive encoding.

9.3 The salience of the piece of information

9.3.1 Study 3a

The third and last prediction discussed in Chapter 7 concerns the salience of the communicated content. As a reminder, a piece of information is salient to a hearer at time *t* when it is of great significance to him at that moment, when integrating it might lead to important revisions of assumptions in his cognitive environment. Also, remember that salient information is construed as information that "is more accurate, more easily retrievable, and more developed in areas of greater concern to the

individual" (Sperber and Wilson 1995: 47). Therefore, this third prediction is situated at another level than utterance interpretation. Indeed, the hearer's assessment of the salience of one piece of information is believed to happen after utterance interpretation has taken place, i.e. at the integration level, at the level of acceptance. Thus, it is posited that the greater the impact on a given individual's cognitive environment, the more carefully and consciously the processes of strength assignment will be carried out and the stronger the subsequent hearer commitment will be.

There already exists independently motivated experimental evidence to support this third prediction. Brunyé et al.'s (2009; 2011) as well as Ditman et al.'s (2010) studies on embodiment suggest better retention of statements in a recognition task when action statements are presented to the participants with the pronoun *you* rather than with the pronoun *he*. These results lead to the conclusion that the pronoun *you* triggers greater engagement during action comprehension as it is ego-related. Consequently, participants perceived those pieces of ego-oriented information as more important than other pieces of information which were not.

Because salience is a subjective and variable notion, pronoun manipulation appears to be the most efficient way to test it. By reading statements that seem to be directly addressed to them, participants should be more likely to feel engaged, to consider the piece of information as more relevant or important to them, and hence to encode salient statements with a higher degree of strength than their non-salient counterparts. If statements are presented from an egocentric perspective, they are more likely to be assigned a high degree of strength and subsequently to be more accessible and more easily retrieved from memory than non-salient statements. Therefore, participants are expected to perform better in a recognition task when presented with salient information than with non-salient information.

In order to test this third prediction, 2 different groups of statements (salient vs non-salient) were created and their salience was manipulated through the use of the pronouns *you* and *he*, following Brunyé et al.'s (2009; 2011) and Ditman et al.'s (2010) studies. Salient information

was presented with the pronoun *you*, whereas non-salient information was presented with the pronoun *he*. The influence of these two types of statements was tested on a yes-no recognition task.

85 native English speakers took the online survey, where they were presented with 20 factual statements (10 salient and 10 non-salient statements, e.g. *You moved to the North* vs *He cut his hand*) from the list of stimuli used in studies 1 and 2.

The recognition test contained 20 statements, half of which were "old" and half of which were "new". 10 statements were presented with the pronoun *you* (i.e. the salient condition), whereas the other 10 were presented with the pronoun *he* (i.e. the non-salient condition). The procedure for the study phase, the recognition test and the distractor task matched those of study 2b, except that the statements were presented for 2 seconds before they automatically disappeared and that the final question about the author of the crime was excluded. The overall structure of study 3a is shown in Figure 10.

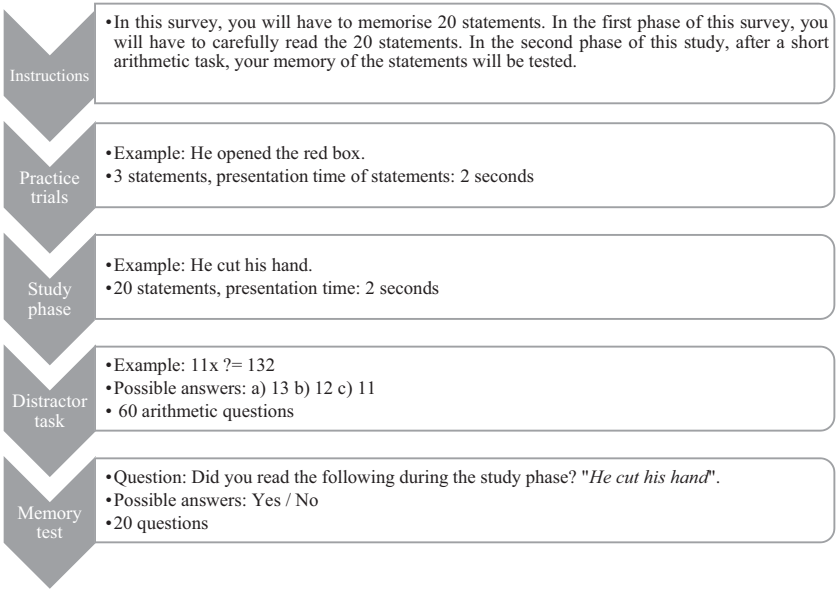

Figure 10: Structure of experiment 3a

Participants accurately answered 68.2 % of the time when they were asked to perform a recognition test on non-salient utterances. When their memory for salient utterances was tested, the accuracy rate was of 67.3 %. Results suggest that the salience of the piece of information, as manipulated in this study, is not a good predictor for accuracy.

The statistical analyses did not reveal any significant differences in terms of recognition between the salient and non-salient statements. The statements presented with the pronoun *you* were not recognised better than the statements presented with the pronoun *he*. However, the lack of results might be attributed to the design, the statements being too short (between 4 and 6 syllables, e.g. *He cut his hand*, *You lost the fight*, *He got a present*, etc.) and therefore too easily memorable. In order to overcome this shortcoming, a design resembling Ditman et al.'s (2010) was created. Participants were presented with longer stimuli, i.e. 3-sentence scenarios, as shown below.

9.3.2 Study 3b

122 native English speakers read 20 3-sentence scenarios specifically created for this study. Following Ditman et al.'s 2010 design, the first sentence gave character information (e.g. *You are a traveller* or *He is a boxer*), the second repeated the pronoun and added information regarding an occupation related to the character (e.g. *You are waiting for your departure* or *He is training for a competition*), and the third began with the temporal marker chosen by Ditman et al. (2010), (i.e. *Right now*), followed by the same pronoun and ending with a verb and a complement, always linked to the previously presented activity and character (e.g. *Right now you are seeing a plane* or *Right now he is losing the fight*). The third sentence of all the scenarios contained the critical verb tested at the end of the survey.

The recognition test was the same as in study 3a, as well as the instructions. The distractor task was similar to the one used in the previous studies. The recognition phase only tested the verb in the last sentence of each scenario. The overall structure of study 3b is shown Figure 11.

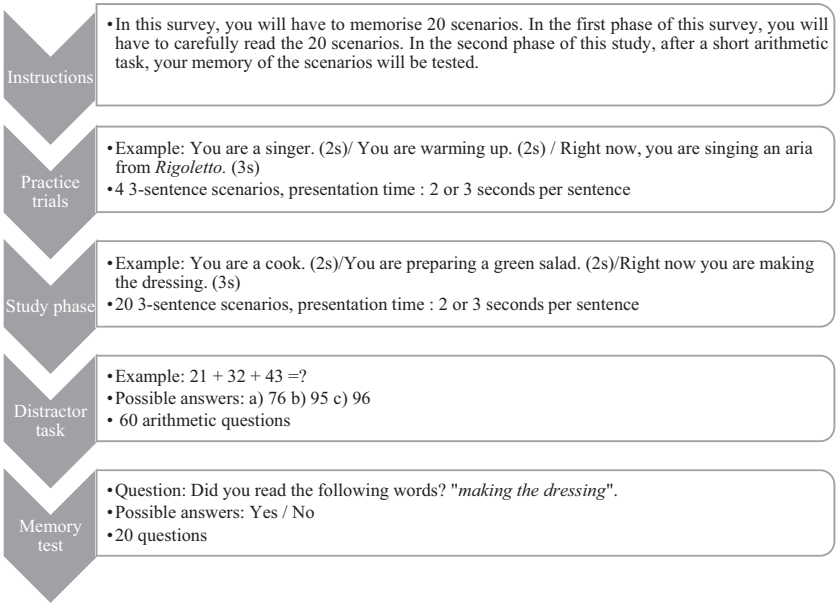

Figure 11: Structure of experiment 3b

When the participants were asked to perform a recognition test on non-salient utterances, they answered accurately 65.2 % of the time. When their memory for salient utterances was tested, the accuracy rate was of 67.1 %. Again, results show no statistically significant difference between the two conditions in terms of accuracy.

Despite our partial replication of the design used by Ditman et al. (2010), we failed to observe a difference in terms of recognition across the two conditions. This might be caused by different factors. First, study 3a is not a faithful replication of Ditman et al.'s (2010) design: 20 simple statements were used instead of 24 3-sentence scenarios. Study 3b also differed in terms of design and statistical analysis: participants were presented with 20 original 3-sentence scenarios (i.e. Ditman et al.'s scenarios were not used in this study) and only verbs were taken as critical words (but not the nouns, the subjects and the verbs as in Ditman et al.'s experiments). Moreover, as far as the statistical analysis is concerned, reaction times were not considered and false alarm rates were

not used. Finally, the pronouns *you* and *he* might not efficiently convey that a piece of information is salient or non-salient, respectively. These shortcomings should be taken into consideration for future research. It should also involve a long-term memory task, which would require face to face interaction with the participants.

9.4 Conclusion

If this last experiment failed to show that commitment also affects cognitive salience, the results of the previous studies point to the conclusion that certainty and reliability, the main parameters which define commitment, have a significant impact on how statements were remembered. Overall, participants consistently performed better in the recognition tasks when statements conveyed high certainty and high reliability. To my knowledge, this study constitutes a first experimental attempt at finding evidence for the pragmatic notion of commitment translated here into the often discussed but seldom empirically supported notion of strength of assumptions in the individual's cognitive environment.

From an experimental point of view, the interaction between linguistic markers of certainty and the source of information's reliability should be explicitly tested in order to see whether there is some kind of hierarchisation between the two categories (i.e. whether the speaker's perceived reliability overrides linguistic markers of certainty or vice versa). In addition, a better fitted design should be applied to the notion of salience since it seems fairly intuitive to claim that more important pieces of information should strengthen their corresponding mental representations. One could also imagine a design involving priming: since, presumably, accessible assumptions demand less processing effort to be retrieved from memory, then a shorter time interval could indicate an accessible representation. So, not only memory but also timing could be a good indicator of the accessibility of an assumption. To run such an experiment, a narrower collaboration with cognitive sciences and psychology could be highly beneficial.

10 General discussion

This research has examined the notion of commitment through different prisms. Commitment has been described as a pragmatic and cognitive notion and considered from both a theoretical and experimental perspective. The three experimental studies presented in Chapter 9 aimed to investigate the effect of commitment on participants' cognitive processing of different statements or short scenarios.

This last chapter tries to pull the different threads together by discussing the various implications that the findings presented above have on the study of commitment phenomena. I will start with the pragmatics of commitment and move on to its cognitive aspect. Then, I will reaffirm the link between the relevance-theoretic notion of strength, accessibility in an individual's cognitive environment, and the results of the three recognition studies. Finally, I highlight the importance of these results.

10.1 Commitment from a pragmatic perspective

The relevance-theoretic model presented in Chapter 6 assumes commitment to be the output of higher-level explicatures that metarepresent the relative certainty and reliability of the piece of information conveyed by an utterance, both in the hearer's representation of the speaker's cognitive environment and in the hearer's own cognitive environment.

We saw that attributed commitment is rooted in the relevance-guided comprehension procedure and takes as input the speaker's utterance, together with available contextual assumptions regarding the

speaker's reputation, trustworthiness and general reliability.[77] When the speaker produces an utterance, she linguistically signposts it with different markers of certainty (such as categorical assertions, epistemic modals or evidential expressions) and indications about the reliability of her source of information (either herself or a reported speaker). The hearer recovers the intended interpretation together with the intended attitude to the utterance, accessed through the process of enrichment, by satisfying his expectation of relevance. Specifically, the hearer's interpretive process yields higher-order explicatures, where propositional attitudes and illocutionary forces are derived. Following the relevance-guided comprehension procedure, the hearer chooses the most accessible satisfactory assumption regarding the speaker's communicated commitment.[78] This assumption is the input used in the processes that govern commitment assignment. The derivation of explicatures and higher-level explicatures leads to attributed commitment, the basis on which hearer commitment is determined.[79] [80]

From this pragmatic perspective, commitment evaluation is a function of both certainty (which applies to the content of an utterance) and reliability (which applies to the source of information),

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77 As a reminder, attributed commitment is defined as the result of the hearer's assessment of the certainty of the communicated information and of the speaker's (or reported speaker's) reliability, based on available linguistic cues and contextual assumptions.

78 As we recall, communicated commitment corresponds to the speaker's way of presenting the piece of information with more or less certainty and herself and/or a reported speaker as more or less reliable.

79 Hearer commitment refers to the degree of strength assigned to a piece of information as it is integrated in the hearer's cognitive environment.

80 If the hearer trusts and agrees with the speaker, the move from attributed commitment to hearer commitment is straightforward: the degree of commitment attributed to the speaker is likely to be tantamount to the degree of strength assigned to the corresponding assumptions in the hearer's cognitive environment. However, this move is not automatic since the hearer may not trust the speaker and may eventually decide not to integrate the communicated piece of information in his cognitive environment (or to integrate it as an assumption with a weaker degree of strength than the degree of commitment assigned to the speaker's utterance).

as predicted by Sperber et al. (2010), and translates into cognitive strength in the hearer's cognitive environment. That is, through higher-level explicatures, different degrees of certainty and reliability for a given utterance are represented as corresponding degrees of strength in the hearer's cognitive environment and are applied to the matching assumptions. Certainty and reliability are two parameters that capture the insight gathered in previous accounts according to which commitment is a function of the certainty of the information conveyed by the utterance (see, for instance, Lyons 1977; Mushin 2001; De Haan 2006; Nuyts 2006; Papafragou 2006; Marín-Arrese 2007; Cornillie 2009; Wilson 2012, among others) and a function of the quality of the source of the utterance (cf. Palmer 1986; Ifantidou 2000, 2001; Marín-Arrese 2007; Cornillie and Delbecque 2008; Schenner 2010; Behrens 2012, *inter alia*). I claim that certainty and reliability govern all four types of commitment (i.e. speaker commitment, communicated commitment, attributed commitment and hearer commitment) and that they allow for clear predictions with respect to the strength of assumptions in a given cognitive environment.

10.2 Commitment from a cognitive perspective

From a cognitive angle, the notion of commitment essentially hinges on the relevance-theoretic notion of strength. As highlighted earlier, Sperber and Wilson (1995: 75) define strength as the confidence with which an assumption is held by an individual and the result of its processing history. Indeed, strength is dependent on the way an assumption is acquired. In this perspective, each assumption in a cognitive environment is assigned a degree of strength, which is comparable to its relative accessibility (1995: 77). Accessibility refers to the "ease or difficulty with which an assumption can be retrieved (from memory) or constructed (on the basis of the clues in the stimulus currently being processed)" (Carston 2002: 376). Crucially, I argue

that the strength of contextual assumptions derived from utterance interpretation is (in part) a function of the degree of commitment the hearer assigns to them. In other words, strength is a function of certainty and reliability.

10.3 Commitment from an experimental perspective

This work offers a way to provide experimental testability for the notion of commitment, which ranges over many different processes. To test it, the traditional notion of commitment had to be decomposed in four distinct phenomena (i.e. speaker commitment, communicated commitment, attributed commitment and hearer commitment). These four types of commitment are built on two oppositions: on the one hand, between speaker and hearer, and, on the other hand, between mental representations (which are of a cognitive nature) and linguistic marking (which falls within pragmatics). By identifying one testable component of commitment (i.e. hearer commitment), this research has shown the impact of commitment on that very process. Thus, the typology presented in Chapter 6 is a crucial step which made commitment empirically testable.

Results of several experimental studies using a recall or recognition paradigm (see, for instance, Birch and Garnsey 1995; Mobayyen and de Almeida 2005; Ditman et al. 2010; Fraundorf et al. 2010 and Spalek et al. 2014) indicate that some linguistic features (such as focusing constructions, pitch accent type, focus particles, verb complexity or pronouns) lead to a stronger representation of the utterance in the participants' cognitive environment, and hence to a higher accessibility in memory than other features. As shown in Chapter 8, certain linguistic markers significantly affected the participants' recall or recognition. In line with these results, I hypothesised that commitment markers (i.e. markers of certainty and reliability) would affect cognitive processing in the same way.

Following Relevance Theory, I suggested that there was a link between the relevance-theoretic notion of strength and memory. According to Sperber and Wilson (1995), each assumption in a cognitive environment is assigned a degree of strength, which is comparable to its accessibility. They claim that "a more accessible assumption is one that is easier to recall" (1995: 77). As mentioned above, some linguistic markers affect how information is encoded, stored and retrieved by participants in a recall or recognition paradigm. Similarly, I posited that the certainty of the communicated information and the reliability of its source determined the degree of strength assigned to the corresponding assumptions. It follows that, within a recognition paradigm, an assumption that is highly accessible will trigger higher recognition scores. Therefore, the more committed the hearer is to a given assumption, the easier it will be for him to recognise the assumption.

10.4 Three predictions about commitment

The three experimental studies presented in the previous chapter aimed to investigate the effect of linguistic markers of certainty, of the source of information's reliability and of the salience of a piece of information on how participants remembered statements or scenarios. These studies were designed to test three predictions.

The first prediction was concerned with linguistic markers of certainty. Attributed commitment and hearer commitment were hypothesised to be influenced by linguistic markers of certainty. Hence, the more the speaker presents her piece of information as linguistically certain, the more likely the hearer is to attribute a strong commitment to the speaker. The hearer is then likely to integrate this piece of information in his cognitive environment with a high degree of strength.

The second prediction focused on the role of the hearer's assessment of the source of information's reliability. Attributed commitment and hearer commitment were also considered to be influenced by the

hearer's appraisal of the speaker's (or the reported speaker's) reliability. The model of commitment presented in Chapter 6 suggests that the hearer is more likely to integrate with a high degree of strength a piece of information provided by a reliable source than the same piece of information conveyed by an unreliable one.

Finally, the third prediction addressed the impact of salience on information integration. It was predicted that the more a piece of information is considered salient by the hearer, the more carefully and consciously the process of strength assignment will be carried out, and the stronger the subsequent hearer commitment will be.

The three recognition studies investigated whether the mental representation of statements or scenarios (i.e. the strength of the related assumptions) would be modified by certainty, reliability and salience and if statements conveying high certainty, high reliability and salience would make their corresponding assumptions stronger, and thus more accessible. Higher scores in the recognition task would confirm this hypothesis. Participants were presented with statements or scenarios modified by a linguistic marker of certainty or uncertainty (study 1), by an indicator manipulating the reliability of the source of information (study 2) and by a pronoun affecting the salience of the piece of information (study 3). These three studies all highlight a previously unexplored pragmatic phenomenon, namely, the processing of commitment during a memory task.

10.5 The results of the three recognition studies

Relevance Theory has made claims about the notion of strength and, if it has posited its existence theoretically, it has not tackled how the process of strength assignment could be empirically measured. To my knowledge, the present research is the first attempt to measure cognitive strength as theorised by Relevance Theory. The results of studies 1 and 2 suggest that the more certain and reliable the pieces of information,

the higher the degree of strength attributed to their corresponding assumptions is, and the better the recognition is in a recognition task. Indeed, recognition accuracy was significantly related to the type of linguistic markers of commitment and to the speaker's reliability. These findings provide the first empirical measure of cognitive strength during interpretation.

Overall, results suggest that linguistic markers of certainty (study 1) and reliability assessment (study 2) have a significant impact on how statements are recognised. Participants performed better in the recognition tasks when they were presented with statements conveying high certainty and provided by reliable sources than with statements expressing uncertainty and communicated by unreliable sources of information.

Whereas the data of study 1 and 2 support the predictions they were testing, it was not the case for the third experiment. The manipulation of the pronouns *you* and *he* (which were supposed to control for the salience of the piece information) did not confirm the third hypothesis, which suggested that ego-oriented pieces of information would be better recognised than their allocentric counterparts. Yet, Ditman et al.'s (2010) studies showed that participants tended to remember scenarios better when they were presented with the pronoun *you* than when they were presented with the pronoun *he*. Since the results of study 3 do not exactly replicate Ditman et al.'s (2010) study and because the same stimuli were not used, it is possible that my design did not properly stage or capture the notion of salience. This could explain the lack of effect reported here, as well as the mismatch between these results and Ditman et al.'s. Consequently, it would be wise to be cautious and to investigate this third prediction further, before rejecting the claim that salience (manipulated through the second- and third-person singular pronouns) does not impact on individual's memory of scenarios or statements. Additional investigation is required to know whether salience is indeed a relevant aspect of the processes of strength assignment in an individual's cognitive environment.

If the third study failed to show that salience affects the participants' memory of scenarios, the results of studies 1 and 2 point to the conclusion

that the two parameters defining commitment and determining strength assignment (i.e. certainty and reliability) significantly impact on the participants' memory of statements. Indeed, statements that were certain and reliable were recognised significantly better than their uncertain and unreliable counterparts. Since accuracy scores in the recognition paradigm is known to give indications regarding the accessibility of assumptions, the present results are taken to indicate that certain and reliable pieces of information are more accessible, and therefore more memorable, during a recognition task. These observations have important theoretical repercussions.

From a pragmatic perspective, all utterances do not convey the same degree of commitment. Cognitively speaking, corresponding assumptions are not all integrated in the same way in the hearer's cognitive environment. Furthermore, these results suggest that integration of assumptions is independent of their truth value. Indeed, an individual can entertain an assumption s/he considers to be true at various degrees.[81] Also, the hearer's interpretation of the certainty of a communicated content (based on linguistic markers of certainty) and his assessment of the source of information's reliability play a major role in the way incoming pieces of information are integrated in his cognitive environment.

From a cognitive perspective, it appears that pieces of information conveying certainty and reliability are integrated in a cognitive environment in such a way that they are subsequently more accessible and thus more memorable than their uncertain and unreliable counterparts.

The findings presented above indicate that commitment to an utterance cognitively corresponds to the strength of the matching assumption(s), where the strength of an assumption is in part a function of the certainty of the communicated information and of the reliability of its source. Consequently, the results of studies 1 and 2 corroborate the existence of Sperber and Wilson's notion of strength (1995: 77).

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81 *Pace* Culioli's (1999: 131) first definition of endorsement, which suggests that to endorse is tantamount to saying what one believes to be true.

10.6 Conclusion

What was a scattered and heterogenous notion, variously named and seldom defined or theorised is clearly identified in this research as a pragmatic and cognitive notion involving the speaker's and the hearer's perspective. The previously presented findings are in line with the two predictions concerned with linguistic markers of certainty and the source of information's reliability. The more certain and reliable the piece of information, the higher the degree of strength assigned to the corresponding assumptions is, and, as supported by the experimental evidence presented in Chapter 9, the higher the accessibility of those assumptions are and the better the performance is in a recognition task. These findings are therefore believed to confirm the theoretical model offered in Chapter 6 accounting for commitment phenomena.

General conclusion

Commitment is a key aspect of communication, as it touches upon a range of central linguistic features such as modality and evidentiality. This notion has been obliquely investigated by several scholars in many branches of the field. Each account attempted to capture how best to represent the fact that speakers can support a given statement at various degrees of epistemic strength. This line of inquiry stemmed from the observation that the speaker cannot always be held responsible for what she uttered, and that commitment can vary.

To provide answers to the questions raised by the linguistic literature on commitment, this research offers a unifying cognitive pragmatic model to account for the kind of processes at work when a hearer has to interpret a statement, and crucially, assess the level of commitment associated with it. This work proposes a theoretical model of commitment phenomena that includes (and crucially distinguishes) the speaker's and the hearer's perspective. It also highlights that commitment needs to be analysed both as a linguistic and as a cognitive phenomenon, which affects every assumption held in the hearer's cognitive environment.

From a theoretical perspective, this research puts forward a relevance-theoretic model of commitment that captures its cognitive effects through the notion of cognitive strength, as it is applied to contextual assumptions. It also suggests that the two traditional parameters which are thought to determine strength (namely, the degree of confidence and the degree of evidence associated with an assumption) map on the kind of facts that commitment studies are trying to account for (i.e. epistemic modals and evidential expressions). In this regard, this proposal echoes the current debate concerned with epistemic evaluation of information and aims to account for individuals' commitment in terms of the relative strength of stored assumptions in their cognitive environment.

Linguistic markers of certainty such as categorical assertions, epistemic modals and evidential expressions, as well as the hearer's appraisal of the speaker's and/or reported speaker's reliability are therefore decisive at the level of attributed commitment and hearer commitment. When the speaker produces an utterance, she may want to give her addressee indications regarding her commitment by using linguistic markers of certainty or reliability. Part of the hearer's comprehension procedure is therefore focused on communicated commitment, where the hearer retrieves propositional attitudes and illocutionary force indicators, for example. This derivation of explicatures and higher-level explicatures gives rise to attributed commitment, which in turn leads to the actual assignment of hearer commitment via strength, which is in part a function of certainty and reliability of the assumptions, as predicted by epistemic vigilance (Sperber et al. 2010). In other words, communicated information is integrated in the hearer's cognitive environment with a certain degree of strength once the certainty of the piece of information and the source's reliability have been checked by the hearer's epistemic vigilance mechanisms. It is further hypothesised that, in the case of salient pieces of information, hearer commitment assignment is expected to be consciously and carefully carried out and the output is likely to be more strongly represented in the hearer's cognitive environment than non-salient information.

In the three recognition studies described above, the participants were presented with statements or scenarios they were asked to remember. These statements or scenarios were either modified by a linguistic marker of certainty or uncertainty, by markers of the speaker's reliability or unreliability, or by a pronoun which was supposed to indicate whether they were salient or non-salient. Results suggest that commitment markers and the hearer's appraisal of the speaker's reliability have a statistically significant impact on how statements were remembered by the participants. Specifically, participants performed better in the recognition tasks when the statements contained markers of high certainty or when they were provided by reliable sources of information than when they conveyed less certainty and were communicated by unreliable speakers. However, the manipulation of the pronouns *you*

and *he* (which were supposed to control for the salience of the pieces of information) did not lead to any significant results in terms of recognition. Therefore, the results for salience do not appear to confirm the theoretical claims.

Following Relevance Theory, the model proposed in this research suggests that there is a link between memory and the strength of assumptions. In this view, cognitive strength translates into accessibility in the hearer's cognitive environment. I take these results to indicate that when the piece of information is certain and the source is reliable, its corresponding assumptions are assigned a high degree of strength in the hearer's cognitive environment. These assumptions are thus accessible and more easily retrievable from memory. Conversely, if the hearer considers the information as uncertain and provided by an unreliable speaker, its corresponding assumptions are assigned a low degree of strength and they are less accessible (and less easily retrievable from memory). This research does not only confirm that linguistic markers of certainty and reliability judgments have an impact on participants' performance (which was already suggested by the results of Moore and Davidge 1989; Sabbagh and Baldwin 2001; Jaswal et al. 2007; Stock et al. 2009; Bernard et al. 2012; Mercier et al. 2014; Dudley et al. 2015 and Koenig and Echols 2003; Clément et al. 2004; Koenig and Harris 2007; Southgate et al. 2010; Sobel et al. 2012 as well as Stewart et al. 2013 on children and adult participants' decision making), it also crucially gives indications regarding the processing of utterances containing a linguistic marker of certainty or displaying a certain degree of reliability. Consequently, these findings highlight the cognitive dimension of commitment. As far as I know, these results are the first to confirm the presence of the cognitive strength of assumptions in an individual's cognitive environment, as hypothesised by Sperber and Wilson (1995).

The originality of this research is manifold, as it addresses an important language phenomenon from a formal, cognitive and empirical perspective. This work devises a cognitive pragmatic account of commitment, which clarified the diversity of the phenomena appearing under the heading "commitment" by establishing a novel typology which allowed to separate a cognitive from a linguistic component of

commitment in both the production and comprehension processes. This typology led to novel predictions, focused on comprehension, which were experimentally tested in an original paradigm aimed to measure the cognitive effects predicted by the model. The results provide evidence for the psycholinguistic validity of the two core components of commitment, i.e. certainty and reliability.

However, I appreciate that the present model of commitment and the ensuing empirical studies are tentative and require further thinking and developments. First, the scope of the research presented in this research is general as it does not thoroughly account for the linguistic aspects of each phenomenon it addressed. This research has set the broad lines of a general model of commitment but it should have a closer look at all the linguistic markers it addresses. In addition, the complex debate between the two domains of modality and evidentiality, which was been briefly discussed in Section 4.3.2, needs to be carefully dealt with, as it is still an ongoing debate in both fields of linguistic enquiry. Moreover, the focus of the research is only limited to explicatures. As we saw with Morency et al.'s (2008) as well as de Saussure and Oswald's (2008, 2009) proposals, commitment can also be investigated in relation to implicatures. Further research on commitment should therefore take into account all of these considerations.

A lot remains to be learned and I will now suggest a few lines of investigation for future research. This work has mainly focused on explicatures, and specifically on declaratives. As was highlighted in the literature review, other sentence types such as interrogatives, imperatives or exclamatives can be related to the notion of commitment and it could be interesting to take these into account. Furthermore, since implicatures have been left aside, a comprehensive account of commitment would also need to take them into consideration. For instance, what can we say about commitment and irony or humour? And what about metaphors? According to Ifantidou (2014: 94), figurative utterances may trigger epistemic vigilance mechanisms, which assess the hearer's potential for understanding and believing during the search for relevance. She also argues that irony and metaphors, for instance, are common persuasive tools, which rather than drawing on use and understanding of language, draw on emotions and the intellect. From this

perspective, these strategies may lead the hearer to accept more easily the values implied in a content. Following Ifantidou (2014) the study of commitment phenomena could shed light on the processes of strength assignments in connection with the figurative side of communication.

The notion of commitment is also often mentioned in relation to politeness strategies. The two utterances in (116) and (117) are indeed very different from that point of view:

(116) I think that Jane is a renowned author.
(117) I think you are mistaken.

If in (116) the speaker linguistically presents the information that Jane is a renowned author as weakly certain, in (117) she does not mark the fact that her addressee is mistaken as uncertain. In fact, the speaker knows that her addressee is mistaken, but she mitigates her observation by using the marker *I think* as a softener. Such uses of linguistic markers of certainty are therefore also politeness strategies that help the speaker preserve her addressee's face. In addition, it has been argued that adverbs such as *possibly* or *perhaps* function as hedges. In this view, they are thought to mitigate the directness of request or observations and the speaker is seen as avoiding commitment (Hoye 1997: 133).

Another aspect worth investigating would be to examine how communicated commitment is expressed via intonation. Hoye (1997: 218) claims that doubt and lack of commitment are often expressed by intonation in English. This might complete the picture of the linguistic marking of commitment (be it encoded or contextually inferred). Also, the role of nonverbal communication in conveying commitment could also be taken into consideration.

Cross-cultural differences might prove to be a fascinating angle as well when it comes to studying commitment. Indeed, linguistic markers of certainty are certainly not universal. It is far more obvious for evidential markers since they are known to vary from one culture to another.

I offered a model of commitment which crucially exploits a notion of graded mental representations for assumptions held in the hearers' cognitive environment. While such notion has been alluded to in the past, this account is the first to explicitly identify parameters that

determine degrees of strength for assumptions and to experimentally test the existence of these graded representations. The model of commitment presented in this book combines two central interests of current pragmatic research by systematically addressing the notion of commitment and by making testable hypotheses regarding the strength of assumptions in the hearer's cognitive environment. Together with the theoretical model provided above, the experimental confirmation constitutes the main outcome of this work, as it brings an insight into the cognitive processing of verbal information. If this research is only the starting point of the journey, I am convinced it contributes to our understanding of commitment as a pragmatic phenomenon, while suggesting exciting lines of possible research. To this, I am fully committed.

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