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A MULTIMODAL STUDY OF SARCASM IN INTERACTIONAL HUMOR

APPLICATIONS OF
COGNITIVE LINGUISTICS

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Applications of Cognitive Linguistics

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In loving memory of my father

Foreword

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Contents

1 Introduction

Humor is a universal human trait (Raskin, 1985), and has started to receive attention from many approaches and perspectives. As integral part of human cognition, humor is culturally determined, exploiting the different stereotypes in cultures. It serves a great deal of social and cognitive functions and is a fundamental part of all types of social interaction. Humor specifically reflects the creativity of the human language and remains one of the "least understood of our cognitive capacities" (Bergen & Binsted, 2004, p. 79). Since humor is such a broad concept, it is very hard to define, to analyze, and operationalize.

The main purpose of this book, then, is to provide a cognitive analysis of humor based on empirical findings. Using a large corpus of examples drawn from two television-series, we will investigate the types of humor and the linguistic mechanisms involved in humorous meanings in interaction. We will also integrate a multimodal approach that will shed more light into the phenomenon of humor.

1.1 Situating the study

The foundations for humor theory can be traced back to the works of ancient philosophers—Plato, Aristotle, Cicero, and Quintilian (cf. Perks, 2012)—and they still hold today, as they contain important insight on the functions and understanding of humor. As has been suggested by Bergen and Binsted (idem, p. 80), humor abuses inferences through linguistic imagery, and since it depicts "truly creative language use" (idem, p. 12), it should be cognitively oriented.

It is true that, with the publication of the *Semantic Script Theory of Humor* (Raskin, 1985) and the *General Theory of Verbal Humor* (Attardo, 1994), humor research has been focused on a more cognitive point of view. As Attardo (2002b, p. 231) put it, "linguists who study humor may well be pleased to find out that they were doing cognitive stylistics all along." Some more recent studies deal with the relationship between humorous mechanisms and the human mind (Giora 1991, 1998; Gibbs 2000; Vandaele, 2002; Brône & Feyaerts, 2003, 2004; Ritchie, 2004; Veale, Feyaerts & Brône, 2006; Brône, 2008, 2010; Tabacaru & Lemmens, 2014; Tabacaru & Feyaerts, 2016 among others). Such studies have focused on explaining the mental processes involved in the interpretation of humorous messages.

To arrive at a cognitive and truly usage-based analysis of humorous utterances, i.e., one which studies humor in verbal and non-verbal interaction, new

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and larger corpora are needed to provide more reliable empirical support. The present study is an attempt at providing such an empirically sound analysis of staged interactions. The corpus used in this study is drawn from two television-series: *House M.D.*, a medical drama, and *The Big Bang Theory*, a modern sitcom. The two series have each their own style and different writing techniques; by looking at two such divergent types of conversational data, we hope to offer a wider perspective on how humor is created. The data have been analyzed and annotated using ELAN (see Chapter 3 for details on the data analysis) for an all-encompassing view on how these mechanisms work and interact with each other.

We adhere to Brône *et al.*'s view (2006) that there is a close relationship between verbal humor, on the one hand, and syntax, semantics, and pragmatics, on the other; this means that an analysis of humor should take into consideration the entire linguistic context in which a humorous utterance appears. Importantly, the non-verbal aspects of humor, notably speakers' facial expressions and gestures, which hitherto have remained fairly unexplored, should also be included; as the study will show, they are often exploited by speakers to underline their humorous intentions. As correctly observed by Mey (2003, pp. 334-335), "facts are never just facts: they always hang together with the context in which they are found and with the people that are at their origins." Drawing on older as well as more recent linguistic theories, and including non-verbal elements as well, this analysis takes into consideration all the implications and meanings involved in humorous communication in a particular context.

1.2 Interactional humor

Interactional humor has been at the center of several discussions (Kotthoff, 2006; Brône, 2008; Priego-Valverde, 2009; Feyaerts *et al.*, 2015; Brône & Oben, 2013; Feyaerts, 2013; Feyaerts & Oben, 2014). It is a relevant topic in humor analysis because, as underlined by Bell (2009, p. 148), in humor, both the speaker and the hearer have to be taken into account. Feyaerts and Oben (2014) stress the importance of meaning coordination among speakers. Speakers create their utterances for an interlocutor/addressee who is also part of the common ground (see also Brône, 2010, for a similar point of view) and the same social context (see Kristiansen and Dirven, 2008). The interactions play a fundamental role for the way meanings are constructed. These analyses of interactional humor build on a number of insights and concepts from the literature, such as Clark's joint action hypothesis, Baron-Cohen's theory of mind, and intersubjectivity, as explained below.

Seeing humor in interaction goes back to Clark's (1996) *joint action hypothesis* which defines language as a joint activity. When engaged in such an activity, Clark says, discourse participants mainly base their linguistic output on what they assume to be common ground between them (Clark, 1992, 1996). For example, he notes (Clark, 1996, p.92) that "[e]verything we do is rooted in information we have about surroundings, activities, perceptions, emotions, plans, interests. Everything we do jointly with others is also rooted in this information, but only in that part we think they share with us."

Clark further notes that language is a set of conventions and that discourse participants have to coordinate with each other both at the stage of production as well as interpretation. The meanings they employ are coordinated according to shared lexical knowledge, or, on the contrary, exploited for a different outcome that goes far beyond that word's original definition, which would be the case in humorous contexts, such as sarcasm and irony (Clark, 1996).

Interaction also hinges on the *theory of mind* (Baron-Cohen, 1995; Tomasello, 1999) according to which interlocutors imagine what is going on in the other speakers' mind when communicating. Human communication depends on the linguistic symbols that are intersubjectively shared by social convention and that are used to focus the attention on certain elements and situations (Tomasello, 1999). When communicating, speakers infer what the interlocutors/hearers are thinking or what they know when they interpret linguistic utterances. Conversations basically depend on speakers' ability to conceptualize the thoughts and ideas in their interlocutors' minds (Brône, 2010). In conversation, they assume the meanings that their interlocutors will adopt.

As such, interactions between speakers draw on intersubjectivity, which can be defined as "the sharing of experiential content (e.g., feelings, perceptions, thoughts, and linguistic meanings) among a plurality of subjects" (Zlatev *et al.*, 2008, p. 1).

Schütz (1970, pp. 55-56) notes:

> [...] all social sciences take the intersubjectivity of thought and of action for granted. That fellowmen exist, that men act upon men, that communication by symbols and signs is possible, that social groups and institutions, legal and economic systems and the like are integral elements of our life-world, that this life-world has its own history and its special relation to time and space [...] But the phenomena themselves are taken for granted [...] They are taken for granted, and they have their specific meaning and way of existence.

Schütz further remarks (p. 56) that all concepts of meaning have a certain structure in the consciousness and belong to a certain "arrangement of all the experiences in inner time, a certain type of sedimentation." Since we observe our interlocutors, interpretation of meaning is possible because we choose from the "stock

of pre-interpreted experiences" (*ibid*.) built up in our brain. In interaction interpretation depends on intersubjectivity, on the shared mutual conventions through which interlocutors coordinate their meanings. Similarly, Verhagen (2008, p. 307) says that interlocutors follow rules "because of the expectation that others will follow them and because one knows others expect one to follow them".

Studying interactional humor along the lines sketched here necessarily implies that one adopts a multimodal perspective on communication, as also non-verbal clues are crucially involved in communicative interaction In a multimodal perspective, language can no longer be seen as the only means of communicating: "people in interaction seldom communicate only through language. A person takes up a certain kind of distance to others, takes up a particular posture, gestures while speaking, and at times gazes at the interlocutor" (Norris, 2004, p. x). As clearly stated by Norris (2004, p. 1) "all interactions are multimodal", which underlines the need for a multimodal approach to humor as well.

Gallagher and Hutto (2008, p. 20) express similar views on intersubjectivity:

> In most intersubjective situations, that is, in situations of social interactions, we have a direct perceptual understanding of another person's intentions because their intentions are explicitly expressed in their embodied actions and expressive behaviors. This understanding does not require us to postulate or infer a belief or a desire hidden away in the other person's mind.

Hence the necessity of including the visual component which allows researchers to analyze these non-verbal elements that are also part of the process of communicating with each other.

Norris further notes (2004, pp. 3-4) that, in interaction, we are not focusing on the experiences of the speakers, but rather on how they express their feelings, thoughts, perceptions, attitudes, etc. Referring back to Clark's (1996) *joint action hypothesis* and Baron Cohen's *theory of mind* mentioned earlier, people's reactions in interaction allow discourse participants/hearers to draw conclusions of what is happening in their interlocutors' minds. The way they express themselves while speaking and the way they react are important factors in communication. In line with these theories, intersubjectivity depends on "our cognitive ability to take other people's perspective and to model the mental states of our interlocutors" (Feyaerts & Oben, 2014, p. 278). Interaction presupposes constant meaning coordination among speakers:

> What is necessary is to coordinate predictions, to read the same message in the common situation, to identify the one course of action that their expectations of each other can

> converge on. They must "mutually recognize" some unique signal that coordinates their expectations of each other.
>
> (Schelling 1960, as quoted in Klein & Orsborn, 2009, p.181)

These are the reasons why a multimodal study of interactional humor is essential for the clear understanding of meanings and implications that the speakers convey. Consequently, in this analysis, we will consider the different contextual factors in which these humorous exchanges take place, verbal as well as visual. Incorporating the visual factor (i.e., speakers' gestural behavior) allows us to analyze how discourse participants express their feelings, attitudes, thoughts, etc.; this gives us a clearer view on how humorous utterances are created by the individuals.

1.3 Relevance of multimodality in discourse and in humor

In line with interactional humor and multimodal approaches to language, we emphasize the importance of taking into account the non-verbal elements that co-occur with humorous interactions. We argue that certain gestures, such as raised eyebrows, frowning or head movements, are used by the speakers to point at some important element in their discourse. Integrating such non-verbal elements into humor analysis meshes well with the growing attention that current research pays to multimodality (see for example Calbris, 2008; Cienki, 2008; McNeill, 2008; Williams, 2008; Lapaire, 2013; and many others) and the visual side of communication (see, for instance, Kristiansen *et al.*, 2006). Multimodality in humor opens new directions for the understanding of humorous meanings and implications because it underlines the importance of speakers' attitude in how the humorous message is conveyed. Most studies on multimodality analyze gestures made by hand and upper limb movements; in this study, we will, however, not be concerned with these, but limit ourselves to facial expressions and head movements that speakers use in their discourse. There are two reasons for this limitation. The first is a methodological concern: when analyzing conversational data from television-series as we do here, the framing by the camera is often such that gestural movements of the hands and upper limbs remain invisible, making a reliable analysis impossible. The second reason is that, apart from beats (repeated rhythmic movements), gestures made by the hand and upper limbs are quite often representational (or *iconic* in Kendon's 2004 terms), expressing aspects such as size, manner, or actions related to the described reality. While such iconic gestures are important communicative elements, they are less relevant to the

analysis of the type we do here, where we are more concerned with interactional aspects of communication. Indeed, as we will argue, facial expressions and head movements, often have a more discursive (i.e., pragmatic) function as *gestural triggers* that alert the hearer (which in this case, can be either the speaker's interlocutor or the viewers of the series, or both) to the humorous intent of the speakers.

In view of the above, the study will thus be concerned with the following three hypotheses:

1) Humor in interaction will exploit speakers' expectations and will depend on constant intersubjectivity between interlocutors. They will refer to the common ground between them to create their humorous meanings.

2) Speakers will use certain gestures to alert the hearers/viewers of their humorous intentions. This is in line with more recent approaches to humor, analyzing the role of prosody in humor and which have discussed a change in speakers' intonation when using irony or sarcasm (Rockwell, 2000; Boxer, 2002; Cheang & Pell, 2009).[1]

3) Speakers will use gestures to point out important parts of their humorous speech, which are fundamental in the process of meaning construction and interpretation. This is in line with theories about the role of certain gestures in discourse in general (see Ekman 1979, for example, where certain facial expressions, such as raised eyebrows, become underlines of parts of the speakers' speech).

These hypotheses will be addressed in different steps. Firstly, given the complexity of humor, we need to categorize the various humorous attestations depending on the type of humor that is at issue (sarcasm, irony, situational humor, etc.) and also analyze the different linguistic mechanisms through which they are achieved (such as metonymy, metaphor, etc.;). Although the different categories of humor have been classified in the literature, a full taxonomy of linguistic mechanisms on such a large corpus of varied examples has not yet been done.[2] The present analysis thus aspires to be an important contribution to the field, shedding more light into how certain humor types are built. We also present the different genres and the different humor types. This will allow a true microscopic focus on humorous techniques that will explain how certain linguistic operations are used in the construction of humorous meanings. We aim at explaining what

1 See also Muecke, 1978.

2 Brône (2008) makes a classification of misunderstanding and hyper-understanding according to the linguistic mechanisms that are used to create them. See also Tsakona (2017) for a taxonomy of categories of humor.

is relevant for the understanding of these humorous instances, which includes notions such as common ground and layering (Clark, 1996). This way, speakers build their utterances and meanings on what the interlocutors have said beforehand or on certain expectations they have from the other discourse participants. In interactional humor, the non-serious is created from elements that the speakers already have at hand. The different references that speakers make in speech (be they from previous discourse or from shared knowledge) grant the constitution of a complex structure of different allusions and inferences. The hearers have to constantly refer to their common ground in order to access these implications. Logically then, the focus is not only on the speaker, but also on previous utterances and exchanges that both speaker and hearer have added to the discourse. Meaning is not created independently of the context and the discourse participants. Rather, it is created for a certain situation and it builds on certain expectations that speakers have from their interlocutors.

Secondly, and in line with recent multimodal studies in linguistics, we will evaluate how speakers use non-verbal clues, such as raised eyebrows, frowning, or head movements, to signal that certain elements in the discourse are more important than others concerning the role they play for the understanding of the humor in their utterance (be it one resulting from the speaker's choice or one intended by the script writers). This lines up with recent multimodal analyses in humor (Tsakona, 2009; Attardo *et al.*, 2013a, 2013b) which have considered visual elements, as well as prosodic and gestural factors co-occurring in the humorous exchanges.

Here, we adopt the view that all these elements, linguistic and non-linguistic, are part of the humorous meaning construction. Studying interactional humor in this way allows us to analyze the role facial expressions (and some other gestures) play in the expression and interpretation of humorous utterances and provides a clearer perspective on how speakers make their messages understood by the hearers. Using such staged interactions for the analysis of humor is not new; Brône (2008) and Rockwell (2000), for instance, also use this type of data. As Rockwell (2000) points out, actors might also exaggerate their reactions with the purpose of making themselves clear to the audience; the reactions and gestures they use have the role of alerting the hearers of their humorous intentions. This makes this kind of data well-suited for the type of analysis that we envisage.

1.4 Structure of the book

The book is structured as follows: In **Chapter 2**, several approaches to humor are outlined and explained. These theories follow the development of linguistic

humorous theories from the very beginning and until more recent analyses. They show how humor works from a semantic, pragmatic and cognitive point of view. These analyses prove relevant because they will be used for the analysis of the corpus and also for the examination of sarcasm and facial expressions in the last part of this study (for example, *gestural triggers* lean on pragmatic inferencing, as will be shown later on).

Chapter 3 presents the tools used to annotate the corpus and the different layers of interpretation. We explain the use of ELAN to annotate such corpus. This chapter provides a detailed description of how humor has been analyzed, drawing on the categorization into humor types as well as on the linguistic mechanisms used to create them. Using an annotation tool such as ELAN for humorous utterances allows the data to be organized on a number of levels that allow easy access to the corpus. It also presents the multimodal account of the data in the corpus, with quantitative results for humor types and multimodal elements retrieved from the corpus.

As will become obvious, the quantitative analysis presented in Chapter 3 logically leads to the nearly exclusive focus on sarcasm in Chapter 4 and on certain multimodal elements (facial expressions and head movements) in Chapter 5. More specifically, in **Chapter 4**, focusing on sarcasm, a more detailed description of the means and meanings at the center of this humor type is given. This is compared to irony and features are presented that help distinguish it from other humor types. We suggest a linguistic analysis of the implications through which sarcasm is acquired in the study, as well as a comparison with other humor types with which it is usually combined. This perspective presents a taxonomy of sarcasm, which deals with the different techniques used to achieve sarcastic effects. The general discussion follows the importance of cognitive theories such as Clark's (1996) layering model in the understanding of humorous messages as well as the idea of incongruity that is at the core of sarcastic utterances.

In **Chapter 5**, we present a multimodal approach to humor analysis, following more recent trends in Cognitive Linguistics that have focused on non-verbal behavior. More particularly, we focus on facial expressions (raised eyebrows and frowning) and head movements (head tilts and head nods) as gestural triggers in interactional humor. These gestural triggers play a role in the creation and understanding of the humorous message since they occur at certain points and with certain elements in the speakers' speech. We will argue that they are strategically placed on certain verbal elements to alert the hearer of the humorous reading of their utterance. In addition, we provide a detailed analysis of the different functions these facial expressions and head movements play in the process of meaning construction.

Chapter 6 concludes this research by underlining the major findings of the study. We accentuate how humor is created and understood, using multimodal elements that speakers use in their discourse. Drawing on these results, we suggest several key questions to be examined in the future.

2 Theoretical premises

The background theories presented here briefly represent the main directions humor has been analyzed from so far: the semantic model, the pragmatics of humor, and cognitive approaches. Even if these frameworks represent different fields of linguistics and all three of them deal with humor from certain perspectives, they all seem to share some common ground (see Tabacaru 2015). These perspectives see humor as a manipulation or an exploitation of the discourse for new meanings to emerge. In the semantic view, the speaker is able to play with two opposite scripts (i.e., interpretations); in the pragmatic view, the speaker already infers how the audience will interpret the message and will surprise them with a new interpretation; and finally, the cognitive approach emphasizes this creativity of adding new meanings or 'layers' to the discourse space. Some of these theories have been discussed in relation to humor over the years. They will help characterize humor from different perspectives that allow a better understanding of the concepts that will be developed in the analysis.

2.1 The semantics of humor

Many linguists have looked at the semantic mechanisms underlying the phenomenon of humor, in order to see how humorous messages are created. Here, we focus on theories that have been concerned with the semantic relations occurring between meanings that could bring about humorous utterances. At the center of these theories rests the idea of script-opposition (Raskin, 1985) which postulates that two incompatible scripts (i.e., meanings) can overlap or oppose each other in such a way that it becomes humorous. A few years later, the *General Theory of Verbal Humor* (Attardo & Raskin, 1991) integrates this mechanism into a broader theory that would explain any type of verbal humor. These two theories offer an initial view on humor from a semantic point of view, and can still be held accountable for the creation of humorous interpretation(s), showing how different readings can be exploited for a different outcome.

2.1.1 The model of script-opposition

Raskin's work on humor was consolidated with his book *Semantic Mechanisms of Humor* (1985), which relates the state of affairs in linguistics at the end of the 1970s (cf. Krikmann, 2006, p. 31). His theory does not refer to humor in general,

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but only to verbal humor (more specifically, jokes that contain a punch line). His theory of script-opposition represents the greatest pillar of Incongruity Theory, since it shows how two scripts (also schemas, frames of reference) can shift and a recipient is able to mentally process both, but in a particular order, which makes an utterance humorous. The aim of a script-based semantic theory of humor (henceforth SSTH) was aligned by Raskin as follows: "Ideally, a linguistic theory of humor should determine and formulate the necessary and sufficient linguistic conditions for a text to be funny" (1985, p. 47).

A script, as defined by Raskin (1985, p. 81) is "a large chunk of semantic information surrounding the word or evoked by it. The script is a cognitive structure internalized by the native speaker and it represents the native speaker's knowledge of a small part of the world." This perspective presents scripts as widely consistent with concepts from Cognitive Linguistics, such as frames (Fillmore, 1982), domains (Lakoff & Johnson, 1980), or idealized cognitive models (Lakoff, 1987).[3]

The main premise of the SSTH is the following:

> A text can be characterized as a single-joke-carrying text if both of the conditions are satisfied:
> i) The text is compatible, fully or in part, with two different scripts.
> ii) The two scripts with which the text is compatible are opposite (...). The two scripts with which some text is compatible are said to overlap fully or in part in this text.
>
> (Raskin, 1985, p. 99)

In other words, scripts can overlap or oppose each other. They are nothing more than cognitive structures stored in memory. This idea has already been treated in linguistics before Raskin (see Fillmore, 1976, 1982; Chafe, 1977), calling to mind Incongruity Theory and the mismatch between two meanings of the same situation. Consider for instance example (1) below, taken from Raskin (1985: 32), which builds on the overlap of two different readings:

(1) "Is the doctor at home?" the patient asked in his bronchial whisper. "No", the doctor's young and pretty wife whispered in reply. "Come right in." [...]

3 On this issue, Brône (2012, p. 467) notes that the main difference is that scripts are connected to lexical elements, whereas Cognitive Linguistics has a less structurally constrained view on frames.

The two scripts share a certain feature that makes shifting from one meaning to the other possible. It is obvious that the patient in (1) wants to see the doctor, a fact highlighted by his "bronchial whisper." While the patient's whisper can be explained by his illness; that of the doctor's "young and pretty wife" is left unexplained. The incongruity arises when the "young and pretty wife" invites the patient to come in when the doctor himself is not at home. Thus, a first non-sexual script (or [-sexual]) overlaps with the reading of the episode with a [+sexual] feature, and it is the wife's invitation causing the switch instantaneously. The first situation (i.e., the patient seeking a doctor) is overlapped by a new situation of adultery that is imposed on the reader. The details given by the joke (the "bronchial whisper", the verb "to whisper") help the reader to recognize the new situation and reinterpret the text in a humorous way. These elements trigger the shift between the two incompatible interpretations ([+sexual] and [-sexual]). Without these, the first situation would be the only one intended by a speaker/writer (but possibly not the only one the hearer might understand). Or, like Pinker (1997) puts it, one frame of reference does not fit the context anymore and has to be replaced by another one.

In this case, then, Raskin bases his theory on the idea of opposition and incongruity between readings. He (1985, p. 108) further notes that this opposition is explained in terms of narrow antonymy: "two linguistic entities whose meanings are opposed only within a particular discourse and solely for the purposes of that discourse." In example (2) below, the word *substitute* creates the connection between two different understandings of the situation:

(2) An English bishop received the following note from the vicar of a village in his diocese: "Milord, I regret to inform you of my wife's death. Can you possibly send me a substitute for the weekend?" (Raskin, 1985, p. 106).

Similar to example (1), this instance creates two opposite interpretations of the same context. The neutral word *substitute* makes it possible for the text to be compatible with two interpretations: it can be a substitute for the vicar (busy with his wife's ceremony) or a substitute for the wife (given the vicar no longer has one). It is the incongruity between these two interpretations that allows the humorous effect of this example. Raskin's view is similar to Koestler's (1964), whose idea of bisociation is presented in Figure 1 below:

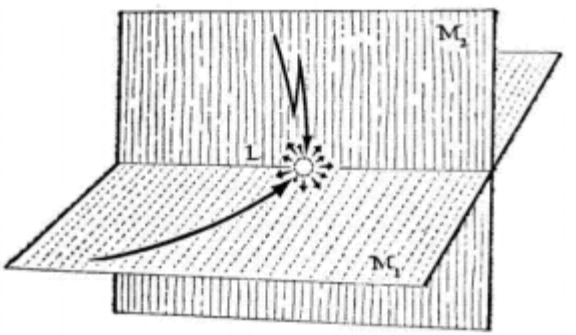

Fig. 1: Koestler's idea of bisociation

According to Koestler, humor involves a variety of intellectual and emotive stimuli to which the human brain reacts. A sudden bisociation of a mental event with two normally incompatible matrices (M_1 and M_2) does not allow our emotions to follow such quick change and finds its solution in laughter (L). As pointed out by Brône and Feyaerts (2003, p. 1), Koestler's theory of bisociation is relevant since "he inquires into the common cognitive grounds of highly disparate phenomena like humor, artistic creativity and scientific discovery." Moreover, Giora (1991) and later Viana (2010) describe script-opposition in terms of *asymmetry*. Asymmetry is generally seen as "the lack of correspondence of form or position on two (or more) opposite sides of a dividing dimension." In short, asymmetry marks the contrast between the different interpretations of a humorous text. Giora (2003) later developed her Graded Salience Hypothesis, which states that non-marked meanings come first and are then replaced by less salient, marked meanings which come towards the end, allowing the switch to a humorous interpretation.

Moreover, Raskin considered humor as a type of *non-bona-fide* communication which would violate the Gricean Cooperative Principle and maxims. These maxims were set as conditions for *bona-fide* (i.e., serious, sincere, usual) communication; by following the 'rules', one would ensure a successful exchange between interlocutors. Briefly, as explained by Raskin, when a speaker uses humor, there are several situations that can take place, depending on how humor was used (intentionally or unintentionally) or depending on hearers' expectations (i.e., they expect or not humor to be used). As such, if the hearer, who is in a

'default' mode of *bon-fide* communication, fails to understand the intended message, they will seek a *non-bon-fide* interpretation to what was said.[4]

2.1.2 General Theory of Verbal Humor

The General Theory of Verbal Humor (henceforth GTVH) developed by Attardo and Raskin (1991) and similar to the SSTH, analyzes the mechanisms that create jokes. It represents a revisited version of the SSTH, allowing an evolution of the initial hypothesis and presupposing a more complete process. The GTVH combines more parameters, script-opposition being one of them. If the SSTH was solely a semantic theory, the GTVH includes more parameters which integrate more areas in linguistics as well (pragmatics, for instance). Humor is discussed in terms of Knowledge Resources (KRs) which represent sets of information that are essential to the understanding of verbal humor. There are six knowledge resources: language, narrative strategy, target, situation, logical mechanism, and script-opposition. They function as templates that make humor 'work':

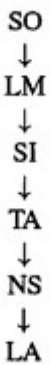

Fig. 2: Hierarchical organization of the GTVH

This perspective sees script-opposition (SO) as the strongest parameter in the creation of jokes. It is followed by the logical mechanism (LM), which, despite the

4 Or, assuming that the speaker violated a certain maxim, the hearer will assume some other maxim to be highlighted. In this case, the Cooperative Principle is still respected, only the maxims operate differently (i.e., they have been modified).

terminology, does not refer to some kind of deductive reasoning, but rather has to be thought of in terms of rational thinking or acting. Attardo *et al.* (2002) present logical mechanisms as mappings between elements, based on similarity[5] and creating a sort of distorted and playful logic that does not hold in the real world. Interlocutors are aware of this and "go along with it" (Attardo, 2001, p. 25) for the sake of the joke. The situation (SI), the target of the joke (TA), the narrative strategy (NS) all link to the language (LA) and the content of the joke.

Consider for instance the following joke taken from Freedman and Hoffman (1980) and analyzed by Attardo (2001, p. 73) in more detail:

(3) How many Poles does it take to screw in a light bulb? Five, one to hold the light bulb and four to turn the table.

Following the GTVH model and the KRs discussed above, this joke can be transcribed as follows:
Script-opposition: smart/dumb
Logical mechanism: figure/ground reversal
Situation: changing a light bulb
Target: Poles
Narrative strategy: question and answer
Language: how, many, etc.

The model presents the different scripts overlapping in example (3), namely the features *smart* and *dumb*. The joke plays fundamentally on the stupidity of Poles, which would make them the target of the joke. The situation where the Poles have to change a light bulb comes in the form of a question and an answer and the focus falls on a figure/ground reversal, which constitutes the logical mechanism. From the bulb (the figure), the focus is shifted to the table (the ground) that the Poles are turning in order to screw in the light bulb. The KRs included in the GTVH thus place the script-opposition 'smart' and 'dumb' as the most important elements, helping to understand how this joke was created.

Nevertheless, several criticisms were brought to the SSTH and the GTVH. One of them would be that script-opposition is nothing more but a revised version of the Incongruity Theory (for instance, Oring, 1992). This similarity has also been pointed out in Attardo (1997). In the initial theory, Raskin (1985) had argued that script-opposition is independent of the three theories of humor. However, these

5 As noted by Brône (2012), this perspective is similar to conceptual mappings between frames, domains and mental spaces in Cognitive Linguistics.

two theories are very similar as they both deal with resemblances between different readings of the same input. The idea of incongruity between interpretations is fundamental for both these theories.

Another criticism concerns the GTVH and, more specifically, the logical mechanisms. Brône and Feyaerts (2004), for instance, argue that logical mechanisms are cognitive mechanisms posited ad hoc for humor. They represent an inventory of processes that guide the construction of incongruity resolution, which is not plausible in Cognitive Linguistics. As a rejection of this criticism, Hempelmann and Attardo (2011, p. 126) claim that "none of the mechanisms of humor is unique *per se* to humor." They further explain that all these elements are relational: humor would arise from the combination of elements not specific to humor.

2.2 The pragmatics of humor

Grice's Cooperative Principle has been at the heart of a large number of pragmatic analyses, since it explains simple rules that interlocutors 'have to follow' in order for their exchange to be successful. As this analysis draws on notions from the domain of pragmatics, it is warranted that we explain notions such as *implicature* and *maxim violation* which have also been used in other theories (such as Sperber & Wilson's Relevance Theory). Moreover, these notions build the foundation for an inferential model of communication, which accounts for relevant phenomena in humor understanding.

2.2.1 Toward an inferential model of communication

According to Saussure's (1916) initial 'code model', communication is seen as the exchange of information (see Mey, 2003): A has 'something' in his head which he transforms in linguistic form (named 'speech'); B 'receives' this message and 'decodes' it in order to obtain what A has originally 'encoded' in its form. As noted by Davies (2007), Grice's main concern was the distinction between saying and meaning.[6] In conversations, speakers say something but also imply other ideas and Grice's aim was to discover the mechanisms behind the process of understanding speakers' intended meanings. He suggested that speakers have a

6 Or, as Horn (2004) puts it, implicatures constitute the link between what is said (i.e., grammatical forms, utterance construction) and what is actually communicated.

standard behavior. When we hear an utterance or when we produce it, we assume it to be true, to have the exact amount of information required/needed, and to be relevant. If an utterance does not respect these terms, we do not dismiss it as irrelevant or absurd; rather, we assume that an appropriate meaning has to be inferred (Davies, 2007, p. 2309). According to the traditional pragmatic approach, every discourse separates literal meaning from speaker's intention. Interlocutors reach the meaning of an utterance by analyzing the clues given by the context. If it fits, then the speaker is said to have respected the Cooperative Principle (henceforth CP); if it does not fit (i.e., the speaker's message is far from the default meaning), interlocutors search for the *implicatures* generated by the utterance in order to understand the speaker's intention (Norrick, 2003, p. 1349). Nevertheless, it is also true that following the CP can also lead to different implicatures generated by the different speakers.

Grice begins by characterizing the notion of *implicature*, by introducing the following example:

> Suppose that A and B are talking about a mutual friend, C, who is now working in a bank. A asks B how C is getting on in his job, and B replies, *Oh quite well, I think; he likes his colleagues, and he hasn't been to prison yet*. At this point, A might well inquire what B was implying, what he was suggesting, or even what he meant by saying that C has not yet been to prison. The answer might be any one of such things as that C is the sort of person likely to yield to the temptation provided by his occupation, that C's colleagues are really very unpleasant and treacherous people, and so forth. It might, of course, be quite unnecessary for A to make such an inquiry of B, the answer to it being, in the context, clear in advance. It is clear that whatever B implied, suggested, meant in this example, is distinct from what B said, which was simply that C had not been to prison yet.
>
> (Grice, 1989, p. 24)

Every utterance holds, behind its simple form, a number of ideas and thoughts that it generates. Day-to-day conversations include other ideas that people express without actually *saying* them. Assuming that A is pleased with the first part of B's answer, namely that C *likes his colleagues*, he might be intrigued by the second part—*he hasn't been to prison yet*. This is an unusual answer to give, as people do not generally just go to prison. That C *likes his colleagues* is a fairly frequent thing to say about someone starting a new job, so there is nothing out of the ordinary about this part of his answer. But why does B mention the fact that C *hasn't been to prison yet*? This is where Grice's notions of *implicature* (implying) and *implicatum* (what is implied) come in. He thus lays the foundations for an inferential model of communication, introducing other important ideas that are in close connection to the notion of *implicature*: the notion of *context* and that of

intention. Everything that is being said depends on the context in which the speakers find themselves, and the intentions behind the words they are uttering.

Grice's example can be interpreted in a number of ways, depending on the given context or on what speaker B *meant*. Moreover, we cannot verify if any of the assumptions Grice makes is true, because, first of all, we do not have any knowledge about the context in which this exchange took place.[7] Thus, his example is open to debate: is it because C's colleagues are not trustworthy people that we are to assume he could go to prison? Is it because he is involved in some kind of illegal activities? Is it because of his bad habits (perhaps he has been to prison before)? This example generates many questions and also many implicatures. Grice makes a highly relevant point here, by showing that every utterance depends on the context and the user. Or, as Attardo puts it (2003, p. 538), "Grice's CP provided tools for [...] explaining how, in the appropriate circumstances, pretty much anything could mean pretty much anything else." Such implicatures arise because, behind the words the speaker utters, there are other ideas. Also, "what a speaker intends to communicate is characteristically far richer than what she directly expresses" (Horn, 2004, p. 3), so implicatures, for the first time, help us to see this distinction between what is **said** and what is **meant**.

As we will see from the corpus, in interactional humor, speakers expect hearers to draw certain implicatures (be they conventional or not) and they manipulate hearers' expectations for humorous results. These expectations allow other meanings to be added to the context, hence creating new and surprising results. In humor, it has been said that violating the Gricean maxims can also lead to humorous understandings.

2.2.2 Violating the Gricean maxims

As seen above, Grice's CP was founded on the notion of cooperation, which marks how interlocutors follow the same direction in order to understand each other and to make the exchange successful. Grice introduced a set of rules that apply to conversation "irrespective of the subject matter" (1989, p. 24); if these rules are

7 Implicature depends on context which is given (i.e., speakers cannot choose it; Sperber & Wilson, 1988, p. 132) and depends on a number of other factors (e.g., speakers involved in the discussion, their background, their experience, time or space etc.). It has been shown that context is not static, but dynamic, it depends on external as well as internal factors, which influence each other (Reimerink *et al.*, 2010, p. 1928). The meaning of words is understood in function of their use in a particular context at a given time.

respected, then no mistake (i.e., misunderstanding) will be made during a conversation, and speakers will be able to understand each other. Grice postulates that

> our talk exchanges do not normally consist of a succession of disconnected remarks, and would not be rational if they did. They are characteristically, to some degree at least, cooperative efforts; and each participant recognizes in them, to some extent, a common purpose or a set of purposes, or at least, a mutually accepted direction.
>
> (Grice 1989, p. 26)

Hence, the formulation of Grice's principle states: "Make your conversational contribution such as is required, at the stage at which it occurs, and by the accepted purpose of the talk exchange in which you are engaged." Table 2 sums up the CP and its attendant maxims that allow speakers to get meaning across (cf. Horn, 2004; Abdi *et al*, 2010):

Tab. 1: The Gricean Maxims

Category	Maxim
Quantity	**1. Make your contribution as informative as is required (for the current purposes of the exchange).** **2. Do not make your contribution more informative than required.**
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.**
Relation	Be relevant.
Manner	Be perspicuous: **1. Avoid obscurity of expression.** **2. Avoid ambiguity.** **3. Be brief. (Avoid unnecessary prolixity)** **4. Be orderly.**

According to Grice, the maxim of *quantity* refers to the amount of information given by speakers in a conversation, the informativeness of the message. If A asks B something, the answer should give as much information as required, allowing the interlocutor to interpret their message. The maxim of *quality* refers to the contents of the discourse and its truthfulness: B's answer should be in concordance with A's question. B should not lie to A, nor should he answer on a different topic.

The maxim of *relation* points to the appropriateness and relevance of B's answer in comparison to the question he was asked (i.e., the words uttered must be relevant for the given context). And the maxim of *manner* refers to the way this answer was provided, so the hearers understand the message; it mainly implies the clarity of expression. Generally, when conversing, people are expected to respect these four maxims, and thus the CP in order to be understood by their interlocutors.

Nevertheless, there are a set of attitudes a speaker can take toward the CP: fulfill the maxims, violate them, flout or exploit them, opt out of them, or be faced with a clash between them. The most important rule for Grice was to follow the maxims and thus achieve a *successful* exchange. In other words, following the maxims means fulfilling them, whereas violating them is not following their directions (or lying). Opting out of the maxims means refusing (under certain circumstances) to cooperate.

For the present analysis, the most interesting case is that of violating or flouting the maxims, as explained below, because, following Attardo (1993), it grants the possibility of creating humorous innuendos. To quote Attardo (idem, p. 539), "flouting is violating a maxim that is salvaged by the fact that the speaker is fulfilling another maxim." For instance, imagine a small conversation between two friends, one of them (A) asks "Would you like a pizza?" to which the second one (B) replies "Ask a child if he would like a pie" (Coposescu, 2004). This represents a flouting of the maxim of relation, because B does not provide a Yes/No answer as A would have expected. However, assuming that B's answer does in fact fulfill another maxim—that of quantity—we can rebuild an inferential path: B is constructing an analogy between him and a child, given what A knows (or what we know) about children, A understands that children like pies, so the most likely scenario is that the analogy was created to make A understand that B would in fact like a pizza as much as a child would like a pie. As a result, comparing himself to a child is enough information. Or, as Levinson put it (1983, p. 109), "if someone drastically and dramatically deviates from maxim-type behavior, then his utterances are still read as underlyingly cooperative if this is at all possible." All things considered, people generally manage to correctly assume what the others are saying, even if the others do not respect the four maxims and the CP. What the interlocutors are saying has to be in accordance with the question that the speaker has asked or the information that they need, thus it has to mean something. Hence, they comprehend what the intended meaning is from what they have.

In the case of humor, violating the maxims is a common way to create humorous meanings since Grice suggested himself that this is a means of creating

irony and humor (Attardo, 1993, 2001). Consider the following examples (taken from Attardo, 1993, pp. 541-542) that show jokes may be created through violation of the maxims (for further analysis, see Attardo, 1993, p. 542):

(4) Quantity
"Excuse me, do you know what time it is?"
"Yes."

(5) Relation
"How many surrealists does it take to screw in a lightbulb?"
"Fish!"

(6) Manner
"Do you believe in clubs for young men?"
"Only when kindness fails." (Attributed to W.C. Fields)

(7) Quality
"Why did the Vice President fly to Panama?"
"Because the fighting is over." (Johnny Carson)

Example (4) violates the maxim of quantity by not providing enough information. While the question can easily be understood as a Yes/No question, it represents a speech act which does not refer to the person's aptitude at performing the task, but the actual performance of the task (Attardo, 1993, p. 542). Examples are numerous, just like "Can you pass me the salt?" while having dinner for instance, and speakers will immediately understand that what it is required from them is not a piece of information ("yes, I can"), but the actual performance of the task (in this case, actually passing the salt). As a result, the humorous implicature is created by the clash between an expected reply and the actual one given in (4). In (5), humor comes from the surrealist preference for strange combinations (i.e., fish and light bulbs do not have anything in common), thus the maxim of relevance is violated by creating an absurd joke. The maxim of manner is violated in (6) based on the double meaning of the word *clubs*: *club* as a group of people and *club* as a weapon. Puns tend to play on the ambiguity of words and their double meanings, and so they are very likely to violate the maxim of manner. And finally, example (7) provides a violation of the maxim of quality, because it implies that the Vice President is a coward. The answer the speaker provides is not exactly official, and he might not have the adequate evidence to sustain what he is

saying, thus clearly violating the maxim. This was done on purpose to generate the desired effect through implicature.

As already mentioned earlier, Grice's maxims have been aligned in order to avoid misunderstandings in conversations. Violating the CP means failing to achieve a successful conversation. But, as shown in examples (4)-(7), jokes violate the principle of cooperation whilst remaining successful exchanges. On this issue, Attardo notes that it represents a contradiction of Grice. If communicators do not follow the maxims, then successful communication should not be possible. Following the CP means conveying information; jokes violate or flout the maxims and thus the CP. Consequently, it is expected that jokes such as the ones discussed above would fail to convey information. The exchanges above make sense in the purpose for which they were intended (i.e., as jokes), they 'work' even as violations of the CP. Attardo (p. 544) concludes that "If it works, it's gotta be cooperative."[8]

As a result, sometimes speakers exploit these maxims[9] with the aim of achieving humorous instances; their techniques will be based on this very exploitation.[10]

2.2.3 Relevance Theory

Sperber and Wilson (1988) base their Relevance Theory (henceforth RT) on the notion of communication and what it involves: "The study of communication raises two major questions: first, what is communicated, and second, how is communication achieved?" (1988, p. 1). The theory follows Grice's inferential model, stating that "utterances raise expectations of relevance" (Wilson & Sperber,

8 On a similar note, Attardo (1999) suggests a counterpart of the CP, namely the Non-Cooperative Principle, which would apply to sarcasm and irony. The main claim of the Non-Cooperative Principle is that violations of the CP are not random; they obey certain patterns (see Eisterhold *et al.*, 2006, p. 1243). Such a principle is defined as the opposite of cooperation, where "two or more agents act in such a way as to achieve goals that they do not share and that are mutually exclusive."

9 Apart from Grice, who has remarked the application of his CP to ironic utterances, other researchers have shown that humor can originate in the violation of the four maxims (see Attardo, 1993, 1994 for a more detailed discussion; Leech, 1983; Morreall, 1983, for more on linking the CP to humor research).

10 On the subject of jokes, Yamaguchi (1988, p. 327) notes that "One of the characters in the joke is free to violate the maxims of conversation in order to produce the essential ambiguity of the joke." This would mean that violating Grice's maxims is a way of creating humorous instances.

2004, p. 607), but questions the importance of respecting a CP and the four maxims laid out by Grice.

Firstly, just like Grice, who emphasized speakers' intentions, communication in Sperber and Wilson's view involves recognition of these intentions. Communication is possible as long as speakers recognize each other's intentions. One of Grice's fundamental ideas, also discussed by RT, was that "the very act of communicating creates expectations which it then exploits" (Sperber & Wilson, 1988, p. 37). Human beings share information, but they have a shared cognitive environment that allows them to interpret what they hear. This mutual cognitive environment provides all the information needed for a successful communication (p. 45). Consider example (7) again: it involves shared knowledge between speakers, i.e., that there was a conflict in Panama, that the conflict was over, and the Vice President went to Panama after the conflict was over. This exchange was uttered at the beginning of the 1990s, after the invasion of Panama by the United States. The same exchange would not have the same humorous meaning nowadays, because the situation and the context have changed, so (7) does not generate the same implicatures anymore. Speakers have to apply what they hear in a certain historical, social, linguistic context. This cognitive environment is defined by Sperber and Wilson as "a set of facts that are manifest" to an individual (p. 38).

Secondly, similar to Grice's view, RT postulates that speakers draw the maximum of relevance from the information processed; they draw conclusions from their cognitive environments which then lead to other conclusions. Consider also the flouting of the maxim of relation explained above with the speaker comparing his desire to have pizza with a child's taste for pie. In Grice's perspective, the exchange is successful because A will not doubt the CP agreement of B, and will assume that his answer is in accordance with his question. Thus, he will imply that his answer provides the necessary information to the interlocutor's request and the other will draw the necessary implicatures (as explained above regarding the pie-analogy, which follows the maxim of quantity by providing enough information about what has been asked). According to RT, the exchange is again successful because it allows drawing the right conclusions for the speaker to be understood. Example (7) provides all the useful information to generate the conclusion that the Vice President is a coward. Or, in A and B's exchange about their plans to have pizza, B's reply allows A to draw the conclusion that his answer is 'yes' (he provides an analogy with a child's appetite for pie, which allows him to make the right inference).

Sperber and Wilson suggest a reduction of Grice's maxims to one single principle of relevance. This principle leads hearers to identify the interlocutors'

intended message. If communicators follow Grice, they are supposed to know the norms (i.e., the maxims and principle of cooperation) for their exchange to be successful. They normally respect the norms; but they can also violate or flout them in order to obtain different effects. According to Yus (2003, p. 1296), Sperber and Wilson's theory is "spontaneous and biologically rooted in human cognition". Whatever the communicators utter, it is assumed to be relevant to the hearer(s). Unlike Grice's CP, they do not obey or disobey it, since "the principle of relevance applies without exception" (Sperber & Wilson, 1988, p. 162).

All things considered, Sperber and Wilson's approach does not consider cooperation as necessary prerequisite for a successful exchange since violating or flouting the maxims still represents successful communication. Thus, humorists can reject Grice's CP in favor of RT which applies to both humorous and non-humorous texts, without justifying their existence by invoking a certain number of norms, maxims, and principles. If, for instance, a humorist chooses to be ambiguous, the principle of relevance still applies to the discourse (i.e., it is not explained by a violation of RT).

To summarize, the central claim of RT is that "the expectations of relevance raised by an utterance are precise and predictable enough to guide the hearer toward the speaker's meaning" (Wilson & Sperber, 2004, p. 607). What people say should be relevant in a certain context and hearers expect it to be clear in order to interpret the message.

2.2.4 Pragmatic inferencing

Instead of the saying/meaning distinction, RT introduces the explicature/implicature factorization (Carston, 2002, 2004; Chaves, 2010). Generally speaking, what is not explicit is implicit. An explicature refers to the message as uttered by a speaker and understood by a hearer. Carston underlines (2002, p. 143; see also Chaves, 2010, p. 113) that explicatures and implicatures happen at the same time (i.e., they are processed simultaneously). Speakers will explicitly say something and then also expect hearers to draw the necessary implicatures from the given discourse.

Wilson and Sperber (2004, p. 635) define an explicature as follows: "an assumption communicated by an utterance U is EXPLICIT if and only if it is a development of a logical form encoded by U." Explicatures refer to "an explicitly communicated assumption" (p. 182), which is made prominent by the speakers' words or behavior. On this distinction, Carston (2004, p. 636) notes:

> "[...] the conceptual content of an implicature is supplied wholly by pragmatic inference, while the conceptual content of an explicature is an amalgam of decoded linguistic meaning and pragmatically inferred meaning."

Implicatures are not explicit and are deduced by the hearers, while explicit meanings represent the decoding of the speakers' message. As underlined by Yus (2003, p. 1302), both explicit and implicit assumptions are "communicated with the same utterance." This does not presuppose that decoding a message happens gradually, but underlines the fact that comprehension is a simultaneous process:

> These subtasks should not be seen as sequentially ordered: the hearer does not FIRST decode the logical form, THEN construct an explicature and select an appropriate context, and THEN derive a range of implicated conclusions. Comprehension is an on-line process, and hypotheses about explicatures, implicated premises, and implicated conclusions are developed in parallel against a background of expectations which may be revised or elaborated as the utterance unfolds.
>
> (Wilson & Sperber, 2004, p. 615)

Going back to the analogy between B's desire to have pizza and a child's appetite for pie discussed above, the exchange has been treated as following the maxim of quantity but violating the maxim of relevance (i.e., what B replies is not relevant for the exchange, but A implies the right conclusion which is understood from his reply). Sperber & Wilson (1988, p. 88) stress that "humans are disposed to develop stereotypical assumptions and expectations" because of events or objects they encounter frequently. In A and B's exchange, it is possible for A to entail the right conclusion because it is known that children like pies. The situation to which B's appetite for pizza is compared is a frequent one, which is part of the shared knowledge between individuals. The speaker used an analogy that was easy to interpret because *everyone* knows that children like pies. Therefore, the logical inference was easy to access, because B gave A enough elements for an understanding of this comparison. RT stresses the fact that the human deductive device accesses elimination rules which allow drawing the correct assumptions (p. 97). The information that is not relevant for their discussion is filtered out, and that which is likely to be relevant catches the attention of the hearer. It is thus not relevant for their exchange that *children like pies*. What is relevant (and thus, what preempts attention) is the *analogy* B makes between his appetite for pizza and children's fondness for pies. This indirect reply also increases the contextual effects of B's utterance. It is what Sperber and Wilson called "poetic effect" (p. 222-233). Compare "Would you like a pizza?" to another reply B could have used "Yes"; instead, B's actual reply "Ask a child if he would like a pie" definitely involves more contextual effects than a simple "Yes" would have. Such reply

demands a certain degree of creativity from the part of the speakers and adds an implication of affect. RT underlines the role of this inferential model for the communication to be successful.

As noted by Yus (2003), humorous effects are likely to be built in the addressee's attempt to recover the speaker's intentions. The speaker may expect some clashes and incongruities that could arise from the text. Let us consider a humorous instance, like the one in (8):

(8) Manager to interviewee: "For this job, we need someone who is responsible.
Interviewee to manager: "I'm your man then—in my last job, whenever anything went wrong, I was responsible." (Dedopolus, 1998, p. 221)

Humor can exploit ambiguities in the text and can lead us through a different path than the one we would normally go through in our search for relevance.[11] In (8), the manager expects the interviewee to access the meaning of his utterance. Humor arises from the clash between the two alternative meanings of the adjective *responsible*: for the manager, it represents a quality (i.e., a responsible person), whereas the interviewee interprets it in the negative aspect: responsible for doing something. It was possible for this new meaning to arise given that the manager's utterance was somehow vague and incomplete. The manager expected that his utterance gave enough contextual information and that it would be relevant enough for the addressee.

Given the ambiguity of the context and from all the interpretations generated by it, speakers can choose to adopt another less relevant analysis in order to create humor.

Consider also (9), which provides an easier path the hearers can adopt in order to interpret the humorous message:

(9) I told him to be fruitful and multiply, but not in those words. (Woody Allen)

11 As indicated by Wilson (1994, p. 44), the turning point for RT are four basic assumptions: (a) every utterance has a variety of possible interpretations, all compatible with the information that is linguistically encoded; (b) not all these interpretations occur to the hearer simultaneously; some of them take more effort to think up; (c) hearers are equipped with a single, general criterion for evaluating interpretations; (d) this criterion is powerful enough to exclude all but a single interpretation, so that having found an interpretation that fits the criterion, the hearer looks no further.

Like the 'pie' example, or example (8), (9) presupposes a path that the hearers follow in order to acquire the speaker's meaning. It also creates a poetic effect. Evidently, in (9), the speaker could have used taboo words or insults instead. The humorous meaning is given exactly by the fact that he did not use those taboo words directly. As underlined by Pinker (2007, p. 122), the human mind uses a conventional meaning that it is then overtaken by a new (unexpected) interpretation in the case of wordplays, metaphors, euphemisms, etc. The utterance *I told him to be fruitful and multiply* has no special effect, whereas as soon as the hearer understands that it was not in *those words*, a whole other set of assumptions are made available for him. He immediately replaces those words with the actual words the speaker uttered at that particular time. He thus infers that the speaker actually insulted that person at that time, and the humorous effect comes from this friction of conventional meaning and unexpected meaning. Pinker also adds that just hearing taboo words feels "morally corrosive" (p. 369), so we consider them unpleasant to think about. However, in (9), replacing those taboo words with euphemisms generates humorous effects because the hearers have to go back and retrieve the actual words that were used at that particular time.

In conclusion, the central claim of the CP is that there is a path that speakers *should* follow in order to get their message across. The four maxims developed by Grice create a schema that people *should* respect in order to *correctly* understand each other. At the time, the theory of the CP was innovative in that, for the first time, the framework centered on the human capacity to generate meanings of a certain utterance. If people want to communicate with each other, they 'have to' follow the rules. Berg also concludes that Grice's CP is useful:

> The question I am raising is what is this kind of relevance? And how does it depend on the context? And my answer will be that the relevant relevance is, roughly, usefulness—usefulness with regard to the conversational goals or objectives of the conversants.
>
> (Berg, 1991, p. 412)

Grice's CP, as well as RT, offers an important understanding for the topic of communication, explaining how hearers infer the meaning of a message on "the basis of evidence provided" (Wilson & Sperber, 2004, p. 607). Saying and meaning are two things brought together by the same (grammatical) form. Saying something implies a number of meanings that speakers have the ability to interpret because of the context in which they find themselves. Meaning also depends on the intentions of the speaker and, once more, hearers have this capacity to infer what these are.

In the case of (interactional) humor, we must acknowledge both the Gricean maxims and Relevance Theory. Firstly, speakers can deliberately choose to

disregard the path implied by the CP, and to exploit the maxims in order to generate humorous effects. As noted by Attardo (1993), this is Grice's contradiction: humor should not generate a successful exchange, because it presupposes a violation of the four maxims, and thus of the CP. Yet humor *does* make sense, even though the maxims are disregarded. And here Berg's remark above seems most appropriate: it is the way people use these maxims which is relevant for a given context. If people choose to disregard the rules, it is with a specific purpose. It is useful to know these rules exist in order to understand **why** a violation of the rules generates a humorous effect.

Moreover, it has been said that RT opens new possibilities for research on humor. As indicated by Yus (2003, p. 1327), RT is not a theory specifically outlined for the analysis of humor, but, as it can be applied to any type of discourse, it can also explain how humorous effects are generated. In the search for relevance, interlocutors have the possibility to manipulate the context in order to humorously add other assumptions to the discourse. Humorous effects are easy to add to a semantically incomplete or ambiguous context, since "the presence of semantically incomplete or manifestly vague terms is a clear indication of where the schema might be enriched" (Sperber & Wilson, 1988, p. 189). Whatever a speaker says, it can be manipulated by a more or less relevant interpretation, in order to establish humorous implicatures. As indicated by Yus (2003, p. 1308), a speaker is able to predict "which mental procedures the addressee is likely to go through in the relevance-seeking extraction of the information that utterances convey." Humor can arise from 'tricking' the audience into adopting another path than the usual (i.e., conventional) one. RT allows us to understand how "speakers devise their jokes by leading hearers to select a first accessible interpretation consistent with the *principle of relevance*, only to invalidate it later with a more unlikely [...] interpretation" (Yus, 2003, p. 1327; original emphasis).

While we agree that Grice's CP can be responsible for the creation of some types of jokes (following Attardo's rationale), we argue that communication, and especially humorous communication, implies constant meaning coordination and construction. It does not stop at 'coding' and 'decoding' a *correct* interpretation, or follow speakers' truthfulness, because it constantly builds on what the others are saying. It shows how creative language can be because meanings are built one on top of the other. Nevertheless, an account of such pre-analytical theories is necessary and useful because it explains the inferential path the human brain follows in order to access certain meanings.

Humor is possible in a given context if the interlocutors manage to play not only with the cognitive environment, but also with the cognitive operations that they predict speakers will adopt in their search for relevance (Yus, 2003). Given

these facts, as remarked by Brown and Levinson (1987, p. 124), "jokes are based on mutual shared background knowledge and values, jokes may be used to stress that shared background or those shared values." Humorous conversations depend on speakers' ability to conceptualize what is happening in their interlocutor's minds. By tricking them into accessing certain meanings, and then adopting other meanings instead, humorous effect may arise.

2.3 Humor in Cognitive Linguistics

Recent insights from Cognitive Linguistics prove relevant for the analysis of humor as well. One of the fundamental assumptions of Cognitive Linguistics is that language relates to our experience of the world and to the way we see and conceptualize it (Ungerer & Schmid, 1996).

2.3.1 From frames to prototypes

One of the main concerns of Cognitive Linguistics referring to semantics was the encyclopedic nature of meanings (Evans & Green, 2006). Unlike linguistic meaning, which provides only the definition of a lexical item, encyclopedic meaning includes additional information about the word, knowledge, and elements associated with it.[12]

The central claim of frame semantics and of the concept of **frame** (also schema, scenario, script, cognitive model), as developed by Fillmore (1975, 1976, 1982) is that any system of concepts can be related in such a way that understanding one of them implies understanding the entire structure in which it fits (Fillmore, 1982). Let us consider a classic example, such as the one given by Schank and Abelson (1977), of the concept *restaurant*. This concept does not simply represent the service institution, but rather implies a number of concepts that it associates with, such as *customer*, *waiter*, *ordering*, *eating*, *bill*. These concepts do not associate with *restaurant* by means of hyponymy or meronymy, but by human experience. Such elements belong together because people experience them together and they can easily associate them as part of the same frame. As such, when someone speaks of a 'restaurant', the interlocutors will automatically

12 For instance, a word such as *book* is said to mean "written or published text" according to the linguistic meaning, whereas the encyclopedic meaning would supply information such as types of books (crime, fictional, etc.) or shape of the book (Kiefer, 1988).

access these other concepts with which the institution is associated, because human beings know they are part of the same experience. Consequently, when one of the concepts from the system enters a conversation, all the other elements in the structure are "automatically made available" (idem, p. 111). This is due to the fact that human experiences with language are organized in frames that people will access when they communicate. Words represent categories of experience that people access when they speak.

Fillmore states that (1976, p. 20) frames represent but "one aspect of the process of communication in a human language" mainly because language understanding is a creative process, so "it depends on the language user's ability to use language to indicate ways of framing experience" (Fillmore, 1976, p. 28). Frames work via associations in memory triggered by certain lexical or grammatical choices:

> Particular words or speech formulas, or particular grammatical choices, are associated in memory with particular frames, in such a way that exposure to the linguistic form in an appropriate context activates in the perceiver's mind the particular frame – activation of the frame, by turn, enhancing access to the other linguistic material that is associated with the same frame.
>
> (Fillmore, 1976, p. 25)

Fillmore notes that a frame depends on contextual experiences; that is, "the context within which we have experienced the objects, properties or feelings that provide the perceptual or experiential base of our knowledge of the meaning of the word" (p. 24). Contexts represent the background in which a frame appears. Fillmore's frame semantics builds on previous work by Boulding (1956) and that of Quillian (1968) who talk about "images" as unified structures, not unlike frames, Fillmore says, as they can be

> thought of as including a record of the individual's beliefs about the world, a filtered and partly interpreted record of his past experiences, a current register of information about his position in space, time, and society, together with his version of the world-models of the other relevant people in his environment.
>
> (Fillmore, 1976, p. 26)

As seen in the classic example of the word *restaurant* presented above, and also in the pragmatic models discussed before, contexts represent the environment in which these frames are built afterwards. They are, as mentioned above, the background situation that allows speakers to access certain meanings. When speakers communicate, they appeal to certain frames that they share with their interlocutors, they expect what they say to be relevant in the context in which it is told and the situation in which they find themselves. They expect interlocutors to "share

the requisite frames" (Fillmore, 1976, p. 27), otherwise communication would not be possible. In other words, speakers have certain expectations through the linguistic choices they make and they expect others to understand the message they want to get across.

To take another example, Fillmore considers the word *breakfast*, whose meaning people understand because it implies a practice in our culture, i.e., having three meals a day and *breakfast* served as first meal, early in the morning; or having eggs, toast, coffee, and orange juice to eat for this meal. It presupposes a criterial type of meal, a stereotype, so to speak (for instance, people know which ingredients are breakfast ingredients and which are not) that people are able to understand because they have a certain frame of the category *breakfast* which they can access in different contexts which are, as Fillmore (1982, p. 119) notes "determined by the multiple aspects of its prototype use." If a speaker talks about having *breakfast* at three in the afternoon, the interlocutors can understand what they mean even though the 'early in the morning' feature is not respected, and thus the ingredient frame becomes more salient in this context. It emphasizes the fact that some features are more central than others, or more *prototypical*, given the situation at hand. More specifically, Fillmore notes:

> The descriptive framework which is in the process of evolving [...] is one in which words and other linguistic forms and categories are seen as indexing semantic or cognitive categories which are themselves recognized as participating in larger conceptual structures of some sort, all of this made intelligible by knowing something about the kinds of setting or contexts in which a community found a need to make such categories available to its participants, the background of experiences and practices within which such contexts could arise, the categories, the contexts, and the backgrounds themselves all understood in terms of prototypes.
>
> (Fillmore, 1982, p. 119)

As indicated by Fillmore himself, the idea of contexts and frames is closely linked to that of **prototypes**. Prototypicality, in Fillmore's (1982, p. 122) words, states that the human brain accesses the "lexically signaled framings" motivated by contexts. Features of certain categories become more or less salient depending on the targeted meaning that the speaker intended. Given our knowledge of the world, and the uses of words (i.e., our experience with language) we expect people to access the frames that we intended in the first place and understand the meaning of our messages.[13]

13 In a more recent study, Langacker (2001, pp. 161-162) notes: "There is, to be sure, a great deal of flexibility in how we do the mappings, but even in its most spontaneous, ungrammaticized

Prototype theory has been much discussed in the domain of cognitive linguistics (see Berlin & Kay, 1969; Rosch, 1977, 1978) to explain how the human mind categorizes elements and phenomena that people encounter every day. Prototypes refer to the human capacity of focalizing on certain aspects of objects, animals, phenomena, and so on in order to classify them and categorize them. The human brain will do so according to the features they have in common. This allows creating a frame whose central element is the "best example" of that category (Ungerer & Schmid, 1996). Considering again the example of the word *breakfast*, we have mentioned that some of the features that are included in this category would be 'early in the morning' or 'first meal of the day.' Nevertheless, the first feature is less salient in the case of a breakfast served in the afternoon. This would be the case of a sign in a café that reads "Breakfast served any time", where the 'early in the morning' feature is less salient than the ingredients served. Speakers would understand what the sign refers to, what *breakfast* means in this case, that it still satisfies the *breakfast* prototype and that it still deserves the name (Fillmore, 1976, p. 27).

Such overlapping similarities allow us, as discussed by Wittgenstein (1958), to create a very complex network of words and meanings based on 'family resemblances' that bring together many concepts related in meaning. In this way, it has been argued that meanings do not randomly float around in the mind; rather, they create complex networks that link them together:

> The idea is that in order to perceive something or to attain a concept, what is at least sometimes necessary is to have in memory a repertory of prototypes, the act of perception or conception being that of recognizing in what ways an object can be seen as an object of one or another of these prototypes. This "situating" process depends not only on the existence of individual prototypes, but also on the character of the whole available repertory of prototypes.
>
> (Fillmore, 1976, p. 24)

On a similar note, Lakoff (1987) discusses the idea of *idealized cognitive model* (or ICM) that is best defined as structures which represent speakers' conceptual knowledge. The ICM is a concept that represents our knowledge of a category. At the center of the ICM we find those features that more strongly characterize the given category. We find again this idea of experiencing language using prototypes that help speakers categorize phenomena around them. These prototypes

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manifestations the framing is partially shaped by convention, a matter of constrained freedom rather than unbridled license."

allow a certain shift of categories, because cognitive categories interact or influence each other in such a way that boundaries become blurred and we can speak of one thing in terms of another. Similarities between concepts and categories do exist, and it is possible that people emphasize only certain features of one phenomenon and leave others out, and hearers will still be able to access the interpretation of a word or an utterance.

Therefore, based on all we know, we are able to access the interpretation of words in a given context. In the case of humor, incongruities between an expected frame and a new frame generate a surprise effect, which can result in humor. This effect is reinforced by the semantic and pragmatic theories discussed above (see also Raskin above). For instance, a hearer can access the most salient frame in a given context, when the speaker intended a less salient one for a humorous result. We argue that prototypes are used for pragmatic inferencing in the case of humorous utterances, because they allow different features to overlap in order to surprise the hearer with an unexpected interpretation.

Consider example (10) below (analyzed in more detail in Veale *et al.*, 2006), where the humorous effect comes from a change in the frames implied by the two speakers, Churchill and Attlee:

(10) Winston Churchill entered a man's washroom in the House of Commons one day and, observing Labor leader Clement Attlee standing before the urinal, took up his stance at the opposite side of the room. "Feeling stand-offish today, are we, Winston?" Attlee chirped. "That's right," Churchill replied, "Every time you see something big, you want to nationalize it."

In this example, the humorous effect is achieved through the contrast between two frames: POLITICS and SEX. These two frames are connected through the idea of rivalry that Attlee initially implies and Churchill uses afterwards to switch the meaning of the utterance. Attlee refers to the POLITICAL RIVALRY existing between them and implies that is the reason why Churchill decided to stand at the opposite side of the room (i.e., the idea that some disagreement separates them). Churchill changes this frame to SEXUAL RIVALRY, based on Attlee's political behavior. He turns the tables on Attlee's initial implication that Churchill might feel poorly compared to him by implying he might fall victim of Attlee's "predatory behavior" (Veale *et al.*, 2006, p. 326). By focusing on different elements (the political separation and the sexual element), this example shows that a change in frames leads to humorous meanings.

In the domain of humor, Coulson talks about *frame-shifting*, a model that is similar to the SSTH presented above, but which presents humor from a more dynamic point of view. The scripts presented by Raskin have been criticized for being too rigid, and, in contrast, "the space structuring model appeals to processes proposed in cognitive semantics for the creative combination of frames and the construction of novel frames in response to contextual demands" (Coulson *et al.*, 2006, p. 232). The frame-shifting process accounts for the flexibility of meaning construction in humor since "elements of the existing message-level representation are mapped into a new frame retrieved from long-term memory" (Coulson *et al.*, 2006, p. 229). Consider for instance an example such as the one below, discussed in more detail in Coulson *et al.* (2006):

(11) I let my accountant do my taxes because it saves time: last spring it saved me ten years.

It is thus at the end of the sentence that the reader has to go back and shift the interpretation of the utterance. Coulson *et al.* call the word *time* a *connector* between the two frames that are at play in the understanding of the humorous effect of this context because it allows the shift in meanings. The frame-shifting allows switching from time saving to time spent in prison (i.e., *years*). Understanding this example requires background knowledge about relationships between businessmen and accountants which allow the shift in frames: from the busy businessman to the criminal businessman. If, at the beginning of the utterance, the reader will interpret this example from the perspective of TIME SAVING, the element *ten years* added at the end triggers the CRIMINAL BUSINESSMAN frame.

2.3.2 Mental space phenomena

Humor can be explained as operating on different levels for which **mental space theory** can provide an explanatory framework. Fauconnier's (1984) mental space theory draws on what is known as scope theory (Russell, 1905; Quine, 1956), and also on Jakendoff's (1975, 1983) opacity principle. Generally, it has been used within Cognitive Linguistics to account for a number of different facts, since it "provided a general model for studying the diverse and rich cognitive phenomena that involve domain connection in human thought and language" (Kihara, 2005, p. 516).

Mental spaces are small assemblies formed as we think and talk, relevant for the way we organize knowledge and we interpret language (Dinsmore, 1987, p.

1). These assemblies consist of elements organized in frames and cognitive models. They are "interconnected in working memory, can be modified dynamically as thought and discourse unfold"; mental spaces have the role of activating structures from long-term memory (Fauconnier & Turner, 2002, p. 102). The Figure below shows the interconnected mental spaces as presented in Fauconnier (1984, 1994) which suppose mapping between elements from different mental spaces.[14] The apostrophe marks the pretense implications of these elements. The first space (with elements such as A and B) represents the reality space and it connects to a pretense space (with elements such as A' and B').

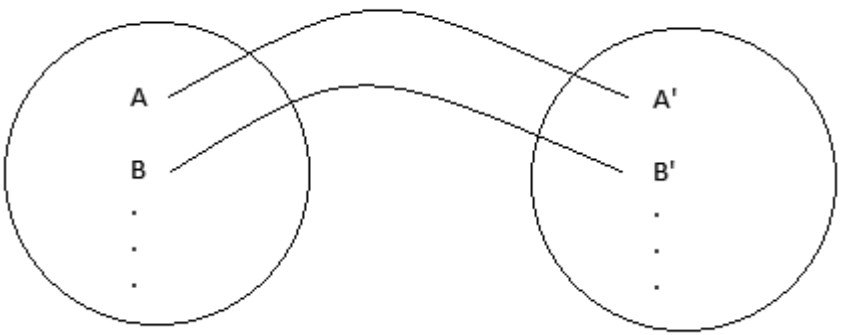

Fig. 3: Mental spaces (Fauconnier, 1984, 1994)

Fauconnier and Turner (2002) take as example the sentence *You climbed Mount Rainier in 2001*. These memories will be stored in a mental space that will include such elements as *you*, *Mount Rainier*, the year *2001*, and the action of *climbing*. These memories can be activated for different purposes and in many different ways. Hence, the above-mentioned sentence will create a mental space that reports a past event (because of the past simple form of the verb 'to climb'). Or, a sentence introduced by *If*, such as *If you climbed Mount Rainier in 2001*, builds a mental space focused on the hypothesis and the consequences of such an event. When we talk, such sentences open up new domains and set up new mental spaces. Sweetser and Fauconnier (1996, p. 10) explain mental spaces as follows:

14 See also Fauconnier 1997, 1999.

> Phrases such as *in 1952* or *in the picture* or *Max believes* are all thus space builders—overt mechanisms which speakers can use to induce the hearer to set up a new mental space. They provide in themselves very little explicit information about the new domain, or what it purports to refer to. And for that reason, any additional structure that may be needed in the domain for reasoning purposes will typically be inherited according to default mechanisms from other domains, and ultimately often from background knowledge. In the same fashion, counterparts for elements in existing domains will be created in the new domains. Connectors link domains, and domains may be linked in more than one way. (original emphasis)

Consequently, a linguistic form has a number of compatible possibilities for the reading of a sentence, depending on the cognitive and pragmatic environment in which it occurs:

> Mental spaces proliferate in the unfolding of discourse, map onto each other in intricate ways, and provide abstract mental structure for shifting anchoring, viewpoint, and focus, allowing us to direct our attention at any time onto very partial and simple structures while maintaining an elaborate web of connections in working memory and in long-term memory. (Fauconnier, 2004, p. 662)

Mental spaces play a major role on language as a whole, thus on humor understanding as well. For instance, Kihara (2005), drawing on Relevance Theory, discusses irony in mental space theory, pointing out that humorous utterances represent a "mutually manifest mental space" (p. 518). A mutually manifest mental space is a mental space that the speaker is confident enough that the hearer will be able to recognize. In this way, humor is an exploitation of mental space phenomena, because it subverts the hearers' expectations. Coulson (2001, 2005b) combines mental spaces theory, conceptual blending (Fauconnier & Turner, 2002), and Cognitive Grammar (Langacker 1987) for a cognitive-linguistic perspective of humor. Her perspective includes irony and sarcasm (Coulson, 2005a) in a *space structuring model*. Brône (2012, p. 477) sums up Coulson's theory: "linguistic and non-linguistic elements in the context selectively activate structures from background knowledge in the form of frames for the purpose of local meaning construction." Coulson's purpose is not to find a general theory of humor (such as the SSTH or the GTVH discussed earlier), but rather to look at humor in discourse and contexts.

Importantly, Coulson's space structuring model has been tested empirically using event-related brain potentials (Coulson & Kutas, 2001) and eye-tracking (Coulson *et al.*, 2006). These experiments show the dynamic side of meaning: for instance, the event-related brain potentials indicate there is neural activity in the process of frame-shifting after the final words of the joke have been understood (Brône, 2012).

Later, in the domain of psycholinguistics, Clark (1996) suggested a model of **layering**,[15] which is connected to the one of mental spaces and which can be applied to various types of situations. For instance, a context where a letter for a friend is dictated to the secretary can be analyzed as happening on two layers: Layer 1—the actual conversation; and Layer 2—addressing the friend in the letter (p. 17). The Figure below represents the dynamics of the three-dimensional model proposed by Clark. According to Clark (idem, p. 16) "layers are like theatre stages built one on top of the other", hence Layer 1 and Layer 2 are constructions of the discourse spaces generated by an utterance or a certain situation: "Layer 1 is at ground level, representing the actual world, which is present in all forms of language use. Layer 2 is a temporary stage built on top of Layer 1 to represent a second domain" (*ibid*.). Clark notes that many conversations are usually structured in one layer; in some cases, the second layer is added (i.e., humor, as we will see below).

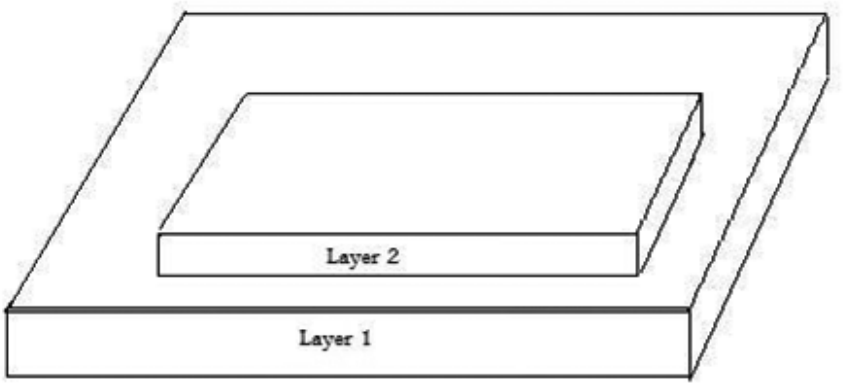

Fig. 4: Clark's layering model

In other words, layering represents constructive discourse worlds based on "the surface level of the actual utterances" (Brône, 2008, p. 2029). Just like other non-literal figures of speech, humor rests its success upon an apparent contrast between what is said and what is intended (Sadock, 1993, pp. 42-43), a contrast

15 See also the theories of Goffman (1974), Walton (1973), and Bruce (1981), from which layering was developed.

between Layer 1 and Layer 2 in this case. On the topic of irony and sarcasm, Clark (1996, p. 384) notes that "speakers also stage individual communicative acts to get the addresses to appreciate certain contrasts between the staged and actual situations."

In any case, Layer 2 depends on the base, which is Layer 1. This base represents the common knowledge shared among interlocutors which, in the simplest form, can be seen as the "intersubjectively observable existence" (Itkonen, 2008, p. 289).

Humor uses the same two-level type of understanding, as it has been discussed elsewhere (Winner & Gardner, 1993). In the case of layering, understanding Layer 2 means understanding Layer 1 as well, because the second meaning depends on the first one. Moreover, Clark and Gerrig (1984) explain irony as a *pretense*. When using irony, the speaker is not asserting something, but pretending to assert something, expecting the hearers to see this as a pretense and recognize the critical attitude in a Layer 2 (see also Recanati, 2004; Wilson, 2006).

To illustrate layering, Clark (1996, p. 353) suggests the example below, which is an exchange between a husband and wife (Ken and Margaret) regarding the husband's tutorial work. Ken mentions that he is not an expensive tutor, that he is *cheap*. Margaret's reply (*I've always felt that about you*) echoes Ken's statement that he is cheap, but adds a new meaning to the situation as a whole (i.e., "you're stingy"). Clark categorizes this as a tease, arguing that Margaret's reply does not represent a serious accusation, but rather a pretense. It is thus considered as a pretense, non-serious accusation (*nonserious language*, see Clark, 1996, p. 353). There is a serious versus non-serious perspective that is to be taken into account, as non-serious assertions (i.e., the pretense) are created from the serious conversation:

(12) Ken: and I'm cheap, ---
Margaret: I've always felt that about you,
Ken: oh, shut up,
(---laughs) 15 bob a lesson at home

Brône suggests a unified account of humor, which would combine mental space phenomena and the layering model proposed by Clark. Figure 5 below provides the layered mental space configuration for example (12), as suggested by Brône (2008, p. 2031), showing how a pretense space is built on the initial discourse space. The discourse base space is built on the 'literal' meaning of words, as intended by Ken, whereas the pretense space shows how the new interpretation is added to the context, as intended by Margaret's tease.

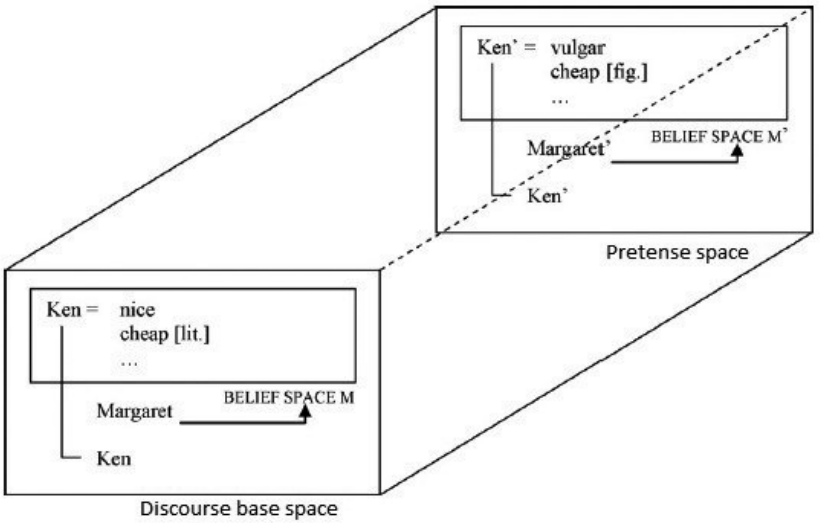

Fig. 5: Layered mental space configuration for example (12)

This interpretation of humor combines both mental space theory and layering. The connector is the adjective *cheap*, which allows adding a new meaning to the discussion. In the base space **M** (Layer 1), Ken's interpretation of *cheap* is meant to be seen as 'inexpensive', whereas in the pretense space **M'** (also, Layer 2), the figurative meaning of 'vulgar' (or 'stingy') is added to the context.

Basically, in Brône's opinion (2008, p. 2028), this unified account of humor would differentiate the "interconnected viewpoints" present in humor. Layer 1 corresponds to the *discourse base space* in mental space theory, and Layer 2 corresponds to the *pretense space* (as seen in Figure 5 above). Mental spaces are thus interconnected in humor in order for humorous meanings to emerge and they are connected through the common ground that interlocutors share. As seen in Figure 6 below, the apostrophe in the pretense space marks the implied meanings they suggest. As such, the 'default' meaning in the discourse base space is changed to an implied meaning in the pretense space. The meanings projected this way are connected.

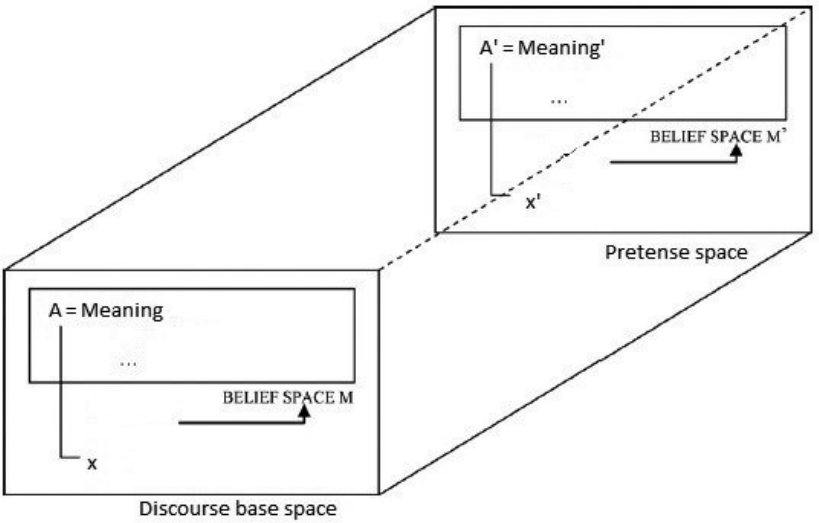

Fig. 6: Brône's (2008) account of interactional humor

To sum up, the concepts of mental spaces and of layering discussed here justify how the human brain categorizes and experiences language. They show how people access information and are able to speak and communicate using the meanings stored in their memory. Humor, as a type of discourse, behaves much in the same way. Discourse is manipulated in order to activate different features from the ones that initially come to mind, or it might allow a clash between two different layers or two mental spaces. In all the cases mentioned here, the key is to find the elements that are similar to both interpretations and that make this switch possible. Both mental space theory and the three-dimensional model of layering reveal how humorous meanings can unfold when people communicate, and allow building up one on top of the other. Humorous utterances are thus pretense assertions that are expected to be accessed in a non-serious mental space.

2.3.3 From salience to reference point constructions

The idea of **salience**, and more importantly, that of graded salience, has been defined and discussed by Giora (1985, 1999, 2003). The Graded Salience Hypothesis depends on some factors that make meanings behind words more salient

than others: conventionality,[16] frequency, familiarity, and prototypicality. We can conceptualize the idea of salience by comparing it to the entries in a dictionary. The human mind will initially come up with the first meaning, based on how frequent or familiar that interpretation is. If the first interpretation does not fit (and thus, there is a clash), it will move to the other meanings a certain expression has. Salience is usage-based: "if a word has two meanings retrievable directly from the lexicon the meaning which is more popular, or more prototypical, or more frequently used in a certain community is more salient" (Giora, 1999, p. 921). In Giora's words:

> [...] the graded salience hypothesis assumes that the modular, lexical access mechanism is ordered: more salient meanings—coded meanings foremost on our mind due to conventionality, frequency, familiarity or prototypicality-are accessed faster than and reach sufficient levels of activation before less salient ones. According to graded salience hypothesis then, coded meanings would be accessed upon encounter, regardless of contextual information or authorial intent. Coded meanings of low salience, however, may not reach sufficient levels of activation to be visible in a context biased toward the more salient meaning of the word [...]
>
> (Giora, 2003, p. 10)

Consider the following riddle, discussed by Giora (2003, p. 13) to underline the importance of salience:

(13) A young man and his father had a severe car accident. The father died, and the young man was rushed to the hospital. The surgeon at the emergency room refused to operate on him, saying: "I can't. He is my son." How is it possible?

As Giora notes on a number of occasions (1988, 1999, 2003), in favor of the Graded Salience Hypothesis, regardless of contextual information, salient meanings will be accessed first by the human brain. In (13) the whole point of the riddle is to show how people will think of a male surgeon and fail to interpret the context (i.e., that the surgeon is a woman). According to Giora, it is the 'contextually inappropriate' feature of 'male' that initially comes to mind when we hear the word 'surgeon' even though the contextual information (the father died in the car accident) points to the fact that this interpretation is the wrong one.

16 Pinker (2007) also underlines the idea that the human mind first relates to the conventional sense of a word.

Giora's theory has also been used in humor analysis, as speakers exploit hearers' expectations and are able to create humorous implications. In different humor types, hearers will access certain meanings first and then change with a different one, a fact which creates the humorous effect:

> The structure of most jokes is such that it keeps us attending to the salient response until the punch line point where a reversal is enforced allowing for the recognition of the novel. The pleasure derivable from the joke hinges on recognizing the innovative in the salient.
> (Giora, 2002, p. 15)

As also underlined by Brône (2012), Giora's theory adds a relevant factor to the script-opposition discussed in earlier semantic analyses of humor. Since conventionalized meanings are reversed by novelty and innovation, Giora's theory underlines the creativity of humor. It is linked to the contrast between expectation and reality as well as the innovative ways that speakers have to use in order to create humorous implications.

Salience is also at the heart of the **reference point** phenomenon. The reference point structure is at the core of several cognitive processes, and aims at explaining how an element can be seen and referred to in terms of another. These structures are related to prototype theory, and they are based on the claim that there are ideal types among perceptual stimuli that serve as anchoring points in perception (Tribushinina, 2011, p. 216). The human brain will categorize these types as more salient than others, and will use them in order to categorize elements. Based on the idea of prototypicality effects, Rosch (1975b, p. 545) came to the conclusion that prototypes "can serve as reference points in relation to which other members are judged." Tribushinina (2011, p. 217) underlines that this does not imply that prototypes are the only reference points "involved in various cognitive activities." Basically, she notes (p. 216), reference points are "stimuli that other items are seen in relation to." As pointed out in her paper, as a cognitive ability, the reference point phenomenon can be encountered in a number of domains, such as, for instance, cognitive psychology (Tversky, 1977; Tversky & Gati, 1978), or people's social judgments (McFarland & Miller, 1990). These studies repeat Rosch's idea (1975b) that people have a general direction for comparison, i.e., they will compare a less salient (prominent) element to a more salient (prominent) one. The more prominent element serves as reference point for the comparison. For instance, people would prefer to say *North Korea is similar to China*, as opposed to *China is similar to North Korea*, because China is the most prominent element in this comparison and serves as reference point for the analogy (Tribushinina, 2011, p. 217).

Langacker describes the idea of reference-point construction as the "ability to invoke the conception of one entity for purpose of establishing *mental contact* with another" (2000, p. 173, original emphasis). Initially (1991, 1993), Langacker introduced this idea as a way of discussing possessive constructions. For example, in a construction such as *Martin's cat*, Martin is the more prominent element in the phrase and thus serves as reference point for his possessions, including the cat. Later, Langacker (1993) expands this idea to include various grammatical phenomena, and, in a more recent article, he notes that "the notion of reference points is as broadly applicable as one cares to make it" (2006, p. 117). In Cognitive Linguistics, this notion has also been expanded to analyze other linguistic phenomena, such as metonymy. For instance, Jing-Schmidt (2008, p. 242) notes that the question *Have you read Goethe?* would make use of such reference points because, here, the name of the author provides conceptual access to the works produced by the writer. Metonymy then functions as a conceptual access mechanism (Kövecses & Radden, 1998, Feyaerts, 1999; Dirven, 1999; Brône & Feyaerts, 2004).

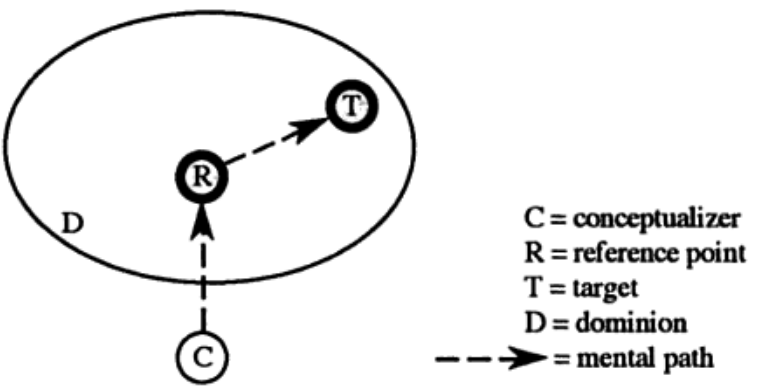

Fig. 7: Reference point construction (Langacker, 2000, p. 174)

Figure 7 above sketches the reference point construction where D is the *dominion*, best characterized as a set of conceptual entities to which a reference point can gain access, C, the *conceptualizer,* and R, the *reference point* used to trace a mental path to T—the *target* meaning. The heavy-line circles describe salience. If one element is used as a reference point for another it is by means of salience. In a given context, the element that is used as reference point must be salient for both the speaker and the hearer, in order for the utterance to be understood.

Langacker explains this construction as a cognitive ability we use without even being aware of it. Consider the following example, which represents a very simple instance of tracing a mental path between a conceptualizer and a target:

(14) You know that hunk who works in the bank? Well, the woman he's living with just got an abortion. (Langacker, 2000, p. 173)

In example (14), we can trace a mental path from the conceptualizer (*the hunk who works in the bank*) to the target meaning (*the woman he's living with*) through means of reference point construction. Clearly, many assumptions can be made from this sentence: perhaps the woman was not noteworthy enough to know her name, or simply that the *hunk who works in the bank* is more popular among them (also, notice the term *hunk* that emphasizes the fact that the hearer would know him due to his physical appearance). As Langacker (2006, p. 116) explains, to locate the woman in the present situation, we have to say where she stands in relation to something else, which represents a more salient entity (in this case, *the hunk who works in the bank*). In Cognitive Linguistics, a dominion consists precisely "of the conceptual structures that are construed in relation to the reference point" (Van Hoek, 1997, p. 55).

As already pointed out by others (Feyaerts, 1999; Dirven, 1999; Brône & Feyaerts, 2004), these reference point constructions are sometimes exploited for a humorous outcome. Salient reference points serve as anchoring marks for comparison with other less salient interpretations. Consider example (15) below (analyzed in more detail in Veale *et al.*, 2006), located in Spain in the mid-thirties, and where the metonymic construal of *silk underwear* serves as reference point construction allowing access to social stereotypes:

(15) Opposition M.P. (referring to the Prime Minister) (S): But what can we expect, after all, of a man who wears silk underpants?
Prime Minister (H): Oh, I would have never thought the Right Honorable's wife to be so indiscreet!

In this example, H is considered as being socially undesirable, since S implies that he is homosexual through the remark to his *silk underwear*. The *silk underwear* allows access to the social stereotype of homosexuality. In his reply, H manages to turn the tables using common knowledge that underwear is not publicly visible. The *silk underwear* is now used in H's reply to refer to cuckolding. The switch between meanings also depends on salience because "different agents may attribute conflicting levels of salience or prominence to different word

readings" (Veale *et al.*, 2006, p. 322). S attributes salience to the wearing of *silk underwear*, whereas H ascribes it to the knowledge of his supposedly wearing it.

To sum up, both concepts of salience and reference point construction can be exploited from the point of view of humor analysis. The concept of salience refers to several mental phenomena, and has already been exploited in order to discuss humor (Giora, 1991; Viana, 2010). For instance, Viana (2010) points out the role *asymmetry* plays for the analysis of humor from the graded salience hypothesis view. Asymmetry plays on two different interpretations that can be given to the same humorous instance, as already mentioned earlier. Such utterances have a salient first interpretation which is later discarded by a more marked reading. Giora aims to explain that non-marked readings come first while less salient, marked meanings appear at the end of a joke. In much the same way, Viana considers asymmetry to be as crucial to the creation and/or understanding of humor and he defines it (2010, p. 506) as "the perceptual difference between the two scripts that usually participate in humor understanding." Following Raskin's account (1985), Viana states that the first script (or the Background Script) progresses as the story goes on, and the second script (the Foreground Script) emerges only at the end and has to be read backwards (2010, pp. 508-509).

2.3.4 Construal operations

One of main hypotheses within Cognitive Linguistics is that semantics is conceptualization. In their book, Croft and Cruse (2004) describe the construal operations that human beings use in language. We argue that some of the processes presented here can also be manipulated to attain a humorous outcome, as will be seen in Chapter 3.

The table below presents the linguistic construal operations presented in Croft and Cruse (2004, p. 46). According to Brône and Feyaerts (2003, pp. 11-12), some of these operations deserve more attention in humor research since they can be used by speakers to convey humorous meanings (they appear in bold below).

Tab. 2: Linguistic construal operations (Croft & Cruse, 2004, p. 46)

I. **Attention: salience**
- A. **Selection**
  1. **Profiling**
  2. **Metonymy**
- B. Scope (dominion)
  1. Scope of predication
  2. Search domains
  3. Accessibility
- C. Scalar adjustment
  1. Quantitative (abstraction)
  2. Qualitative (schematization)
- D. Dynamic
  1. Fictive motion
  2. Summary/sequential scanning

II. **Judgement/comparison** (including identity image schema)
- A. Categorization (framing)
- B. **Metaphor**
- C. **Figure/ground**

III. Perspective/situatedness
- A. **Viewpoint**
  1. Vantage point
  2. Orientation
- B. Deixis
  1. Spatiotemporal (including spatial image schemata)
  2. Epistemic (common ground)
  3. Empathy
- C. Subjectivity/objectivity

IV. Constitution/Gestalt (including most other image schemas)
- A. Structural schematization
  1. Individuation (boundedness, unity/multiplicity, etc.)
  2. Topological/geometric schematization (container, etc.)
  3. Scale
- B. Force dynamics
- C. Rationality (entity/interconnection)

The first category—attention/salience—refers to what Chafe (1994, pp. 26-30) calls the focus of consciousness. It can be separated into different subparts, according to the elements that are being underlined: selection, scope, scalar adjustment, and dynamic. We will only focus on the first category—*selection*—which represents our ability to focus only on parts of our experience and ignore others that are irrelevant for the given context. These parts that we focus on are deemed

more relevant for the purpose at hand and will show only parts of the conceptual frame. As part of selection, we underline the importance of *profiling* and *metonymy*. Profiling represents the highlighting of certain elements in a frame. For instance, both the words *reader* and *read* refer to the action of reading, but while *reader* profiles the agent doing the reading, *read* refers to the process. Metonymy alone also represents a recurrent semantic mechanism, discussed recently in a number of works (Feyaerts, 1999; Seto, 1999; Warren, 1999; Pauwels, 1999; Brône & Feyaerts, 2003; Panther & Thornburg, 2003a, 2003b; Coulson & Oakley, 2003; Barcelona, 2003, and many others). Metonymy is a reference-point construction which, through means of salience, connects different concepts in the same frame or refers to the frame as a whole. In humor research, metonymy has been seen as one of the concepts that create complex associations in the human mind and result in humorous effects. The way metonymy is exploited in the process of humor has been discussed in a number of studies (Feyaerts, 1999; Barcelona, 2003; Brône & Feyaerts, 2003, Tabacaru & Feyaerts, 2016).[17]

The second category—judgement/comparison—has three subtypes: categorization, metaphor and figure/ground. In the case of humor, Brône and Feyaerts (2003) argue that these subtypes can be exploited for a humorous outcome. *Metaphor* is created through means of comparison. According to Lakoff (1987), it is a shift of meaning from one entity to another belonging to two different domains. Croft and Cruse (2004, p. 55) present metaphor[18] as a relationship between "a source domain, the source of the literal meaning of the metaphorical expression, and a target domain, the domain of the experience actually being described by the metaphor." In Lakoff and Johnson's (1980) view, metaphors are part of our daily life, because they show how we conceptualize our experiences. Saying that HAPPY IS UP has to do with the way we understand our experiences and this perspective is different from the standard, literal definition of concepts. We constantly compare them to something else; we speak of concepts in different terms because they echo our own experiences with language. The last subtype here, *figure/ground*, has also been analyzed in relation to humor. It has been shown that it generally plays on the incongruity between these two concepts (Attardo &

17 Metonymy provides a conceptual mapping between two entities belonging to the same domain, creating a relationship of substitution (as in X STANDS FOR Y). In the case of humor, some elements in the frame will be perceived as more salient than others in order to create 'social stereotypes' based on fixed ideas people receive about certain groups of people. These salient features represent the PART FOR WHOLE metonymy, because they refer to the entire group in which they are included. People are able to access the whole frame by hearing just certain elements that belong to it.

18 Metaphor will be discussed in more detail in Chapter 4.

Raskin, 1991; Brône, 2008). This relation refers to specifying the position of one object—the figure—relative to another object—the ground. Following Talmy's (1983, pp. 230-231; 2000, pp. 315-316) classification, the figure is generally more salient, simpler, smaller or more mobile than the ground, which is the exact opposite: more backgrounded, more complex, larger, and more stationary. We can assume that humor will take advantage of these expectations, and reverse the figure and the ground (Attardo & Raskin, 1991; Brône, 2008).

The third category—perspective/situatedness—refers to the speaker's point of view and position. Even though it also refers to the spatiotemporal location of the speaker, the perspective may also depend on their knowledge, beliefs and attitudes. It has three subtypes: viewpoint, deixis, and subjectivity/objectivity, which have a separate classification of their own. In humor, the concept of *viewpoint* plays a central role because it plays on the speaker's vantage point or orientation in a given space.

In humor, these categories are exploited in order to conceptualize things differently for a different outcome. Brône's (2008) typology of hyper and misunderstanding in interactional humor includes construal operations, such as deixis, scope or figure/ground alignment. These elements, he argues, act on ambiguity and manage to trump hearers' expectations, by adding new and humorous meanings into play.

These mental models help schematize how the human mind perceives the phenomena around it, focusing on how language is a result of our experiences with the world. These cognitive theories usually explain how people access meanings when discourse unfolds and how these meanings are grouped into frames or mental spaces in the human mind. We show that all these mechanisms can be exploited for a humorous result, because they play on people's expectations in a conversation.

2.4 Conclusion

The three approaches presented here have been applied to humorous phenomena. They show the processes of meaning constructions in humorous utterances, emphasizing the importance of incongruity (the semantic approach), discourse space (the pragmatic approach), and mental phenomena (cognitive approaches).

Firstly, we have mentioned that more recent approaches to humor have combined some of these theories in order to explain humorous utterances from a cognitive linguistic point of view (Brône & Feyaerts 2003, 2004; Coulson 2005a; 2005b; Brône, 2008). For instance, Brône and Feyaerts (2003) stress the idea that humor results from the overlap or switch between two or more scripts/frames,

but they also discuss the importance of prototypes for the understanding of humorous effects. As such, they point out that metonymy can be seen as a referential phenomenon which creates complex associations in discourse. A salient feature will thus stand for a certain concept or an idea which hinges on frames, prototypicality, as well as salience.

Secondly, humor based on incongruity revolves around marked-reference point structures in order to play on prototypical (salient) inferences and to achieve "optimal innovation" (Giora, 2002; Brône & Feyaerts, 2003). Brône (2008) presents a cognitive approach to misunderstandings and hyper-understandings in humor using Clark's model and Fauconnier's mental spaces. A first meaning that everyone would access through means of inference is trumped by a new meaning that does not appear as salient enough to be accessed first. By verbal mastery, the speakers manage to exploit people's expectations in order to give a new meaning to the utterance. This is also discussed by Coulson (2001) in the frame-shifting process or by Giora in the marked informativeness hypothesis (Giora, 1991) as well as the optimal innovation hypothesis (Giora, 2002, 2003). Frames that originally come to mind will then be subverted by other frames, which will change the final result and understanding of the utterance.

Finally, a theory of humor has to take into consideration the cognitive processes involved for the retrieval of meaning. It thus seems clear that these mechanisms can be exploited in order to trick the hearers and surprise them with a new interpretation they had not originally accessed. As discourse unfolds, new meanings can be built on top of interpretations that hearers are expected to access, showing how linguistic norms can be exploited in a creative way. As Norrick (2001, p. 258) nicely sums it up "the punch semantically reverses the sense we would expect from the build-up, and forces an unexpected sense to our attention." Since layering is an important factor in interaction, these complex processes intertwine and connect serious with non-serious spaces in which the speakers build their humorous implications.

The next chapter presents the corpus and the tools used for the present research to which these theories have been applied.

3 Corpus, coding tools, and quantitative overview

More and more studies on discourse in general and humor in particular are based on empirical evidence analyzing how speakers create humorous utterances. Like others (Brône, 2008; Uhlig, 2009; Percillier, 2016), the empirical evidence comes from (scripted) television series, as this allows an analysis of interactional humor from a multimodal perspective. An important point is highlighted by Dynel, and later reiterated by Fägersten (2016) in her volume *Watching TV with a Linguist*:

> Whether intuitively employed by regular language users or carefully constructed by a script writer…an interaction always operates on the same linguistic resources, in accordance with deeply ingrained, and frequently only intuitively felt, communicative rules.
>
> (Dynel, 2011: 44)

The two television series that were selected, *House M.D.* and *The Big Bang Theory*, are radically different in kind and style. The former is a medical drama, which includes, however, a great deal of humorous instances, generally in the form of witty and sarcastic remarks; the latter is a sitcom featuring a group of successful but nerdy scholars who often misunderstand the world and people around them. The choice of such widely divergent series allows a cross-register comparison of humorous mechanisms. Below, we present the corpus in more detail, followed by the coding tools used for analysis. ELAN, the annotation tool used in the study, will be explained afterwards, as well as the different options that have been used to annotate and compare this type of data.

3.1 The corpus

The data in the corpus come from two contemporary American television series: *House M.D.* (2004—2012) and *The Big Bang Theory* (2007—2019). These two series are quite different in kind: while Dr. House trumps everyone with his verbal mastery (see also Dynel, 2013; Tabacaru & Lemmens, 2014; Tabacaru & Feyaerts, 2016), *The Big Bang Theory* (see also Eitelmann & Stange, 2016) presents mainly nerdy comments on the daily life of successful scholars (one of whom is incapable of interpreting sarcasm).

As detailed below, for each series, a number of episodes was selected, leading to a selection of +400 instances per series. The 15 episodes selected represent 15 ELAN files, as will be presented in more detail below. The corpus on which the study is based thus provides a selection of varied examples and allows a comparison of how humor strategies are exploited across different genres and different

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writing techniques. As will be shown, the mechanisms at work in the humorous interactions (presented in more detail in the next section) are not at all different across genres, which gives further credence to their general, cognitive-functional nature.

House M.D. is a medical drama, created by David Shore, which started in 2004 and lasted until 2012 (a total of eight seasons). An episode lasts approximately 40 minutes (see Appendix A for short summaries of episodes considered in the corpus). The series centers around an antisocial doctor (Dr. Gregory House, played by Hugh Laurie) working with a team of his own who specializes in diagnostic medicine. The show has been acclaimed for the witty and sarcastic comments of the main character (Dr. House) who shows verbal mastery and never misses an opportunity to mock the others.[18] Mainly, the show includes a great number of sarcastic remarks and hyper-understandings, differentiating it from *The Big Bang Theory*, which consists of a different environment, where sarcasm seems to be misunderstood or taken at face value. Example (16)[19] from the corpus illustrates a typical instance of such interactions. In this scene, Dr. House thinks the patient, who is a carpet cleaner, has William's syndrome, a disease that is explained in their dialogue:

(16) House: He has William's syndrome.
[...]
Taub: What about the other symptoms?
House: He has no other symptoms.
Taub: But William's does.
House: He's got the teeth, the glasses.
Taub: William's cuts IQ by 20.
House: He doesn't work in the physics department. Except when they spill a black hole on their carpet.

There are two types of humor here: the hyper-understanding in *He doesn't work in the physics department* and the sarcastic comment in *Except when they spill a black hole on their carpet*. The hyper-understanding here is based on a layered meaning (Clark, 1996) which adds a new interpretation to the utterance. The remark trumps Taub's reminder of the 'lower IQ' feature imposed by the disease.

18 See also reviews of the show on *imdb.com*.

19 The examples in this book were taken from *House M.D.* (© Heel & Toe Film, Shore Z Productions, Bad Hat Harry Productions, Moratim Produktions, NBC Universal Television, Universal Media Studios).

House's implication is that the patient's IQ is low, since he does not work in the physics department (therefore, it is implied that he is not a genius). He playfully echoes Taub's words by trumping the intended meaning and adding a completely opposite one. It also includes a sarcastic comment which plays on the meaning of the verb *work*: since he is a carpet cleaner, if his services are ever requested, he could work in the physics department. The meaning here hinges on the difference between being part of the department and the department as a location where one can work (as a carpet cleaner, in this case). This instance is categorized as sarcasm not only for the semantics of the verb *work,* which includes a double interpretation of this verb, but also for the *black hole* added to the situation. This element is a reference to their being physicists, and can be explained as a prototypical element of the world of physics. House's verbal mastery includes all these for a layered meaning of the linguistic context in order to trump the other discourse participants.

Given the high number of instances of sarcastic utterances, it is warranted we focus on this concept more elaborately in a separate chapter, allowing a more accurate analysis of this humor type. Such sarcastic utterances build on the common ground between speakers, as we explain later on. However, the importance of common ground for the creation and interpretation of sarcasm will also be shown via the misunderstandings present in the other television-series, *The Big Bang Theory* was created in 2007 by Chuck Lorre and Bill Prady and lasted until 2019. It is a sitcom, which, as the term suggests, explicitly aspires to be humorous. An episode lasts approximately 20 minutes (about half as short as an episode of *House M.D.*), but contains more obvious humorous utterances, also marked by a laugh-track. The series presents a group of four friends (Leonard, Sheldon, Rajesh, and Howard) who work as physicists, who, though highly intelligent, do not know much about life outside of the laboratory. They are presented as socially awkward (as opposed to Leonard and Sheldon's very attractive neighbor, Penny) and humor generally comes from the way they interpret what the others are saying (first degree versus second degree interpretation of utterances).

The high presence of such misinterpretations is the main motivation for selecting the series for analysis, as it provides a nice counterbalance for the *House M.D.* corpus which, overall, is more sarcastic, as illustrated in example (17) above. Example (17)[20] illustrates such a misunderstanding, showing how there is a clash between different viewpoints (which Ritchie [2006] sees as an essential feature of misunderstanding):

20 The examples in this book were taken from *The Big Bang Theory* (© Warner Bros Television & Chuck Lorre Productions).

(17) [Sheldon playing a videogame, where he plays a fictitious character Sheldor]
Sheldon: AFK [...] Sheldor, back online.
Penny: What's AFK?
Sheldon: [to computer] AFK. [turning to Penny] Away from keyboard.
Penny: Oh, I see.
Sheldon: What does that stand for?
Penny: Oh, I see?
Sheldon: Yes, but what does it stand for?

This example, like many others retrieved from the annotated data from *The Big Bang Theory*, is an instance of misunderstanding, where one of the speakers (Sheldon) fails to understand what the other interlocutor meant to say in the first place, thinking of *OIC* as an abbreviation instead of the regular comment *Oh, I see*, a confusion which hinges on homophony; this gives the kind of clash of viewpoints mentioned by Ritchie (2006) and Brône (2008). In other words, humor arises from this clash where the two interlocutors are not on the same level and refer to two distinct interpretations of the same given context. An audience who witnesses the exchange between the two characters has access to both interpretations: that of Penny, and that of Sheldon. Consequently, they see the phonological resemblance between a possible acronym *OIC* and Penny's reply *Oh, I see*. The audience will access the right inferences when hearing Penny's *Oh, I see*. Humor arises when they are faced with Sheldon's misinterpretation (of a supposedly acronym *OIC* that respects the structure of his own acronym *AFK*). The default meaning accessed by Penny's utterance is then shifted to another meaning that, crucially, the audience had not considered before.

Given that this series is an actual sitcom, based on humorous situations and events, there are more humorous instances even if the episodes are shorter, hence fewer episodes were needed to get to the same number of instances. These episodes were retrieved from the initial seasons of the series (see Appendix B for short summaries of the episodes from *The Big Bang Theory* used in the study). Even if *House M.D.* eventually comprised eight seasons and *The Big Bang Theory* is airing Season 10 at the moment, we only focused on the four initial seasons, a choice conditioned by the availability of the DVDs at the onset of this study.

The randomly selected episodes are listed in Table 3 below. The number of humorous instances is given for each episode, as well as the total number of instances, and the total duration (in seconds) of humorous exchanges:

Tab. 3: Selected episodes for the corpus

	Season	Episode	Duration of episode	Number of instances	Total duration time of instances
House M.D.	1	08	00:41:28	39	336.201
House M.D.	1	14	00:41:45	28	216.758
House M.D.	1	17	00:42:19	46	453.734
House M.D.	2	01	00:41:56	65	445.179
House M.D.	2	06	00:42:04	33	256.7
House M.D.	2	15	00:42:03	19	145.446
House M.D.	3	03	00:41:49	40	302.652
House M.D.	3	08	00:42:05	46	302.697
House M.D.	4	08	00:40:57	68	424.556
House M.D.	4	13	00:42:04	54	457.137
The Big Bang Theory	1	03	00:21:30	51	465.852
The Big Bang Theory	1	15	00:21:19	67	500.786
The Big Bang Theory	2	03	00:20:22	85	628.642
The Big Bang Theory	2	09	00:20:09	116	787.923
The Big Bang Theory	3	11	00:19:00	103	734.309
TOTAL		15	09:38:50	860	6.458.572

The corpus is thus made of 15 episodes (15 ELAN files), which represent a total of 9h38m of video. The 860 humorous instances drawn from the episodes constitute 1h47m of the total duration of instances present in the corpus.

Each humorous instance has been transcribed verbatim. The verbatim transcription of the examples includes the entire dialogue in which a humorous instance takes place. We have used scripts available online even if not completely error-free,[21] and proofreading was necessary.[22]

Although the humorous meaning is given as a reply to someone's utterance and thus, in this case, usually appears at the end of an exchange, the entire interaction was taken into account in order to see how the different humorous meanings build in discourse. In interactional humor, the process of meaning construction among the different speakers is fundamental for the understanding of

21 See also Quaglio (2016) on the use of a corpus from television series.

22 Retrieved from http://dr-house.hypnoweb.net/ for *House M.D.* and from http://bigbang-trans.wordpress.com/ for *The Big Bang Theory*.

the added layers of meaning. For instance, in a humor type such as hyper-understanding, the humorous meaning is given solely by the turning of the tables and by reversing the situation as presented by the first speaker. In the case of insider humor, the common ground builds in different scenes, and even episodes, and also from the constant interactions between interlocutors. Register humor is also based on the scenes that the audience is familiar with and draws on the previous exchanges between speakers. If a speaker suddenly changes the way they speak, it is by comparison to the previous discourse that this gets a humorous effect. Consequently, the entire exchange is necessary for an overview of how a particular instance of humor is created.

The situations that the audience are presented with are also described in some detail for the understanding of certain humor types (for instance, situational humor). Certain details regarding the characters are also given between brackets in certain scenes where the speakers build their humorous interactions on certain visual elements or scenes present in the context.

3.2 Coding tools

3.2.1 Humor types

For the present analysis, the classification followed the humor types as used in the Corinth corpus (Feyaerts *et al.*, 2010; Feyaerts, 2013). This typology unites non-technical, general classifications that have been made in the literature on humor analysis. In total, the classification consists of 23 humor types, as listed below:

> situational humor, narrative joke, pun, irony, sarcasm, exaggeration, understatement, teasing, hyper-understanding, misunderstanding, parody, register humor, anecdote, absurd humor, insider humor, joint fantasy, stereotype humor, meta-humor, self-mockery, self-glorification, gender humor, sexual humor, inter-textual humor.

These humor types are defined in more detail below, each time illustrated by examples taken from the corpus.

3.2.1.1 Situational humor

Situational humor represents any type of non-verbal humor (situations, caricatures, etc.) that does not rely on any verbal features. It is commonly perceived as an irony of events, where the result is incongruous with a certain expectation. It is seen so as an outside viewer (Lucariello, 1994; Shelley, 2001; Elleström, 2002).

Situational humor is thus unintentional and "emerges in the eye of the beholder" (Ellestrom, 2002, p. 51). According to Shelley (2001, p. 775), a situation is perceived as humorous/ironic when people's conception of it opposes the normal way in which the situations "fit into their repertoire of concepts."

Consider example (18) below, categorized as situational humor. It is the situation itself that creates the humorous effect rather than any specific linguistic device. In this scene, taken from *The Big Bang Theory*, Sheldon's friends gather around his office surprised to see him talking to a very attractive young woman. They all comment on the odds of such a scene taking place, when both Sheldon and the young woman stand up to leave the room:

(18) Sheldon: Thank you for coming by.
[Everyone rushes to look nonchalant: Leonard starts drinking water from the fountain, Raj pretends to be reading a poster on the wall, and Howard leans against the wall to look cool]

Humor arises here from the situation that is presented to the audience. The three friends, who had been eavesdropping in front of Sheldon's office until then, rush to look nonchalant when Sheldon and the young woman head towards the door. The incongruity between their different behaviors (first eavesdropping, then pretending that nothing happened and that they do not care who the person with Sheldon is) creates a humorous effect for an audience that witnessed the whole scene (before and after). It is the scene as a whole that is humorous, because it presents a clash between their different behaviors. Instead of acting normal, the group of friends is trying to look nonchalant. The whole effort they place in pretending to be normal creates the clash with the scene before, when they were eavesdropping on their friend's conversation. There is no verbal mechanism involved, since the audience is only presented with the visual elements and that is what constitutes the contradiction between the different behaviors.

3.2.1.2 Narrative joke

A narrative joke generally has a surprising and funny ending. It has various forms (question-answer, riddle, dialogue, etc.) and it contains a punchline that comes at the end of the narrative which creates a shift in interpretations (Attardo& Raskin, 1991). Raskin (1985, p. 29) observes that jokes represent "situation comedies" and are very similar to anecdotes since they are both short funny stories. Oring (1992, p. 2) notes that jokes depend on an "appropriate incongruity", which marks "the perception of an appropriate interrelationship of elements from domains that are generally regarded as incongruous."

Narrative jokes have been the focus of several works on humor (Raskin, 1985; Freud, 1989; Attardo & Raskin, 1991; Attardo, 1993, 1994, etc.) and are usually easily recognizable (e.g., "A man goes into a bar…"). They usually have a punchline and a surprising ending which creates the humorous effect. No such narrative jokes were found in the corpus that we annotated and analyzed.

3.2.1.3 Puns

In a broader sense, puns represent a play on words that have different meanings (either through polysemy or homonymy). The formal identity can be either orthographical (homographs) or phonetic (homophones), allowing a play on words that have the same, or nearly the same, sound. Pollack (2011) underlines the fact that puns can also transform one thing into another by sight (in the case of a visual pun). The incompatibility between meanings is fundamental for a humorous effect (Koestler, 1964).

Puns are easily created in the study through polysemy or homonymy. Consider example (19) below. In this scene, taken from *The Big Bang Theory*, Leonard, who has a crush on his neighbor Penny, goes to see her. He comes back looking sad, to which Sheldon says:

(19) Sheldon: Penny for your thoughts.

In this example, the pun resides in the same form and pronunciation of the proper noun *Penny* and the common noun *penny*. The same form is used to create a humorous pun which actually marks the source of Leonard's sadness. By using the specific idiom *a penny for your thoughts* (with the proverbial meaning "What are you thinking about?"), but transforming it in order to match the current situation (the indefinite article *a* is dropped, which makes the construction similar to that of a proper noun), Sheldon creates a play on words. It is the polysemy and the switch between the two readings that allows the humorous meaning to be created.

3.2.1.4 Irony

In pragmatics, irony has been viewed as relating to the opposite of what is expressed literally or a violation of one of the Gricean maxims. In other words, it marks the difference between the literal and intended meaning of an utterance (Grice, 1989). It has been emphasized that irony is not explicitly indicated as such because it is always indirect (Grice, 1989; Giora, 1995) or involves a negative evaluation (Clark & Gerrig, 1984). More recent approaches (Coulson, 2005a; Kihara,

2005) see irony as a pretense space that underlines the violations of expectations and norms.

Irony represents an incongruity between what is said and what is meant (Grice, 1975), between an actual situation/context and how the speaker presents the given situation. Irony and sarcasm (the next type, see below) are actually quite similar and researchers have discussed them in relation to each other (Gibbs, 2000; Nunberg, 2001; Kihara, 2005; Tobin & Israel, 2012, etc.). The following example is taken from *House M.D.* and refers to a patient's symptoms. Irony refers explicitly to his symptoms and does not aim at mocking the patient specifically (as would be the case with sarcasm, shown below):

(20) House: Kid just started seizing. Not a symptom of food-born toxins.
Foreman: Also, not a symptom of drug use. Not two hours after admission.
House: So what would make him seize...in addition to all his other delightful symptoms.

The ironic expression *delightful symptoms* consists of an incongruity between what is said and what is known to be true from the situation presented in the series. It is obvious that a patient's symptoms talked about in the immediately preceding context are anything but *delightful*. The contrast between the positive meaning of *delightful* and the negative symptoms creates irony. Just like sarcasm, irony depends on the common ground between speakers and hearers. The common ground in this case constitutes the situation as a whole (the patient in the hospital), as well as the previous exchanges between interlocutors (i.e., not knowing how to diagnose the patient).

3.2.1.5 Sarcasm

This humor type is usually seen in relation to irony, the difference being that it is more aggressive (Lee & Katz, 1998). Sarcasm is also defined as being more overtly critical than irony, with "clearer markers/cues and a clear target" (Attardo, 2000, p. 795). Sarcasm is more hurtful than irony (Hanks, 2013) and is intended as a criticism towards a target (Mesing *et al.*, 2012).

In the corpus, sarcasm represents 36.6% of the annotated data which makes it worthy of a more detailed analysis. Sarcasm is a mechanism similar to irony (Kihara, 2005, for instance, treats sarcasm as a subcategory of irony); with the difference being that it also consists of a mockery toward someone or something, which makes it aggressive as Lee and Katz (1998) point out. Consider, for instance, example (21) below, taken from *House M.D.*, where an older woman starts

writing poems for Dr. House. These poems are read out by his friend, Dr. Wilson, who comments on them afterwards:

(21) Wilson: It's not bad for an eighty-two-year-old. She asked me to give that to her true love.
House: What can I say, chicks with no teeth turn me on.

Compared to (20) above, this example is more aggressive and includes a mockery toward someone (in this case the eighty-two-year-old woman writing poems for Dr. House; the mockery also includes Wilson's expression *true love*, which House reduces to sex). It is not only the opposite of a thought as would be the case with irony above (clearly, Dr. House is not turned on *by chicks with no teeth*), but also brings an explicit criticism toward someone in particular. Dr. House's entire utterance represents a mockery towards the old woman (as such, the expression *chicks with no teeth* is used to describe her). The expression is in no way flattering to the old woman, being built on a metonymy (PART FOR WHOLE)[23] where certain characteristics are singled out to refer to the entire person. As shown later on, the difference between irony and sarcasm may not be all that straightforward.

3.2.1.6 Exaggeration

Traditional pragmatic theory has seen exaggeration as a violation of Grice's maxim of quality or quantity. Haverkate (1990) describes exaggeration in terms of disproportionate dimensions in the real world. This humor type generally represents an exaggeration of the facts triggering an ironic or humorous effect (e.g., through hyperbole).

In example (22) below, humor arises from an exaggeration of the actual facts. In this scene, taken from *The Big Bang Theory*, the group of friends discuss Penny's (who is not present in the scene) new addiction to video games. Leslie suggests that Penny needs to find a sexual partner, which is expressed by her words *get her some* (also made explicit by Sheldon's reply). Howard's reply to their exchange represents an exaggeration:

23 Metonymic inferencing is one of the mechanisms used to create sarcastic meanings, as will be illustrated later on.

(22) Leslie: My point is that Tinker Bell[24] just needs to get her some.
Sheldon: Some what? Oh, yes, some sexual intercourse.
Howard: I'll take the bullet.

The hyperbolical expression *take the bullet* refers to Howard's volunteering to help Penny with her video game addiction and offering to sleep with her (following Leslie's suggestion that she needs to have sex). The idiom *take the bullet* underlines the fact that Howard is in some way forced to do this for Penny's sake. He is thus not willingly choosing to have sex with her, but is *taking a bullet* (the implication being that he is a victim sacrificing himself for the sake of others). The exaggeration also comes from the metaphor of 'taking a bullet', and thus comparing sex with Penny with taking a bullet. Humor arises from the incongruity of these two frames, i.e., seeing the (supposedly pleasant) possibility of sex with Penny as a heavy sacrifice of taking a bullet. Added to that is the more general pattern that in the series Howard is always the one who tries to find a girlfriend and fails.

3.2.1.7 Understatement

Understatement is the opposite of exaggeration and the humorous effect relies on a remarkably weak presentation of the facts. Understatement is generally achieved by shifting the focus to something (i.e., a detail, an element, an action) that is less important (Rishel, 2002).

The following example is taken from *The Big Bang Theory* and presents Beverley (Leonard's mother) in the car with Penny, who is also driving the car. Penny refers to an earlier scene where Beverley talked about her divorce from Leonard's father, news which clearly upset Leonard:

(23) Beverley: Your check engine light is on.
Penny: Yeah, I gotta put a sticker over that. So, uh, you must be devastated about your divorce.
Beverley: Oh, not at all. But I am a bit distressed to be in a vehicle that's not subjected to regular maintenance.

The humorous effect comes here from a shift of focus from the divorce (an important matter in Beverley's life) and the check engine light in Penny's car (a less

24 Tinker Bell is a fictional character from *Peter Pan*, used here to refer to Penny most likely because of the blond hair.

important matter compared to a divorce). This shift of focus depends on a general expectation the hearers would have and the reaction shown by Beverley: a divorce constitutes an important matter in someone's life compared to a check engine light. The two adjectives used here (*devastated* and *distressed*) add to the humorous effect of this exchange: Beverley is *not at all devastated* by her divorce, but *a bit distressed* to be in Penny's car; this implies Beverley's feeling anxious and upset about being in a car that is *not subjected to regular maintenance*. When Beverley says she is *a bit distressed* about the check engine light, the effect is also exaggerated compared to the understatement of the effect of her divorce. These two matters constitute a comparison which adds to the contrast between Beverley's expected reaction and her actual reaction.

3.2.1.8 Teasing

Teasing is interactional and takes the form of clever answers or pseudo-aggressive challenges between interlocutors. It has been defined as an intentional provocation followed by "playful off-record markers" (Keltner *et al.*, 2001, p. 234) where the speaker uses "a potentially insulting/aggressive comment but simultaneously provides/relies upon cues that the utterance is to be understood as playful/non-serious" (Alberts, 1992, p. 155).

Teasing hinges on the common ground between discourse participants (Clark, 1996; Feyaerts & Oben 2014) since they know the interlocutor is not being serious. Consider the following exchange below between Wilson and House. In the series, Dr. House is addicted to Vicodin[25], which is the element on which Wilson builds his tease:

(24) Wilson: How's your biker?
House: Pumped an air bubble into a vein in his lung.
Wilson: The things people do... Doping, Vicodin...
House: Hey, you're talking about me, aren't you?

Teasing here is created through an analogy between the patient, the biker who is doping, and Dr. House, who is taking (and is addicted to) Vicodin. This analogy is not explicitly expressed by Wilson, but implied through elements from the common ground (shared between the discourse participants, and the audience at home already familiar with the story of the show). Nonetheless, keeping the teasing tone, Dr. House makes the analogy explicit with his rhetorical question

25 A medicine used to relieve pain.

Hey, you're talking about me, aren't you? which also represents a playful reply to his tease. In the present study, teasing always has a playful tone (as opposed to sarcasm) and is built on what we already know about the interlocutors.

3.2.1.9 Hyper-understanding

In the case of hyper-understanding, a speaker will exploit weak spots in a previous speaker's utterance and reverse the intended meaning. The speaker will "playfully" echo the previous utterance by turning the tables and "change the initial interpretation by revealing the potential weaknesses of the other's linguistic choices" (Brône, 2008, p. 2031). It generally hinges on a key element marking the switch between two different readings of the same context.

Speakers generally take advantage of the interlocutor's choice of words in order to trump them and "turn the tables." The key element taken from the previous utterance is fundamental for the triggering of the new meaning in the same context. Consider example (25) below which presents the team outside the hospital, brainstorming in order to diagnose a patient. Dr. House masterfully plays on the word *idiopathic* used in the previous utterance, but changes the meaning:

(25) Cameron: Idiopathic T-cell deficiency.
House: Idiopathic, from the Latin meaning we're idiots cause we can't figure out what's causing it.

Here, humor exploits the phonological resemblance between two different readings in order to change the initial interpretation of the utterance. Clearly, the words *idiot* and *idiopathic* do not share the same root, but the purpose of this joke is to point out the resemblance between them and to cleverly reverse the initial meaning. *Idiopathic*, (i.e., *from an unknown cause*) is trumped by reversing the original meaning (as intended by Cameron) and adding a target (in this case, the team of doctors for not being able to diagnose the patient). In House's utterance, the inference is that the disease has an unknown cause because they cannot find it (hence, they are *idiots*). This result is possible by playing only on the similarity between the forms of these two words and by finding a key element in the interlocutor's utterance that would make the switch possible.

3.2.1.10 Misunderstanding

Misunderstanding has been analyzed in relation to hyper-understanding because it represents its opposite. Humor results from a speaker genuinely misinterpreting the intended meaning of a previous utterance. As underlined by Brône

(2008, p. 2037), it is a character and not the reader/viewer who will be misled "by a (highly unlikely) ambiguity" which can be linguistic or not. Unlike jokes, the misinterpretation does not happen because of a punchline, but is rather due to an opposition between a salient (adopted by the listener) and a non-salient reading (adopted by the character or the participant).

In the following scene, taken from *The Big Bang Theory*, Sheldon, who likes Leonard's new girlfriend Stephanie and wants them to stay together, pays a visit to Penny (Leonard's now ex-girlfriend) to ask her to stay out of their relationship. He thinks of a scene where Penny would be interested in Leonard again, and asks her to *suppress her libido*:

(26) Sheldon: Now, should that happen, I would ask you to find some way to suppress your libido.
Penny: I could think about you.
Sheldon: Fine, whatever works.

Humor arises from Sheldon's misunderstanding of Penny's sarcasm in her reply *I could think about you*. Penny sarcastically implies that thinking about Sheldon would suppress her libido (i.e., he is repulsive or undesirable to a point of suppressing her libido). His reply strictly sees this as a possible suggestion for her suppressing her libido, and he does not react to Penny's mockery of him. Moreover, misunderstanding is perceived mostly by a third party (in this case, the audience at home watching the show), who accesses Penny's sarcastic interpretation as well as Sheldon's misinterpreted reading. The recognized clash between these two readings is what creates the humorous effect. In any case, misunderstanding generally provides two different readings given to the same utterance. The difference with other humor types is that the second reading is not accessed intentionally, but the interlocutor fails to connect to the most salient meaning intended by the speaker. The humorous effect is visible to a third party (here, the audience) who sees both interpretations.

3.2.1.11 Parody

An older definition of parody sees it as "a device whereby an author mimics the style of another work, exaggerating it in order to mock the stylistic habits of a targeted author" (Hutcheon, 1986, as quoted in Twark, 2007, p. 21). In the study, parody consists of humorously imitating the way a person speaks (for example, impersonation). Speakers will imitate someone in a particular situation. Parody includes an incongruity that contrasts "the original text with its new form or context" (Rose, 1993, p. 33).

Generally, in this study, parody is achieved by impersonating the interlocutor. The characters in *The Big Bang Theory*, for instance, often mock Raj's accent since he is originally from India. Similarly, in example (27) below, Dr. House mocks the patient's stuttering by imitating the way he speaks:

(27) Senator: W-what would the voters think? If they find out I've had a b-brain biopsy?
House: This could leave you b-b-b-b-brain damaged and you're worried about NASCAR dads?

Humor arises in this example from the obvious mockery and impression of the interlocutor. Two words seem difficult to pronounce for the Senator (*w-what, b-brain*). When House repeats the stuttering, he enforces and exaggerates it by underlining the first letter of the word *brain* (*b-b-b-b-brain*). The humorous effect comes from the obvious parallelism with the previous speaker's (the Senator) way of speaking. House builds the pretense space on the common ground (previous discourse) presented in the scene. The humorous effect also comes from an expected reaction and the actual reaction House has: as a doctor, this is not a usual way to speak to a patient.

3.2.1.12 Register humor

Register humor is a result of a sudden shift in the language register that has a humorous outcome (for instance, speakers can shift from formal to informal use of language). It thus creates an incongruity between two registers which results in the humorous effect of the scene. A register is a language variety that corresponds to certain situations or aspects of the speaker's life and experience (Attardo, 1994, p. 230).

Most examples of register humor occur in *The Big Bang Theory*, a series which presents the environment and life of nerdy scholars. Generally, it is the choice of words that triggers the humorous effect of a scene (use of euphemisms or just technical vocabulary for everyday situations). Consider example (28) below, taken from *The Big Bang Theory*, where the humorous effect is achieved through Sheldon's words. From a semantic perspective, this instance has been analyzed as metaphorical. In this scene, Sheldon needs to know more about the relationship between Penny and Leonard and, more specifically, why they broke up:

(28) Sheldon: If I have any hope of keeping them together, I need data. Specifically, I need to know exactly what Leonard did that caused you to pop an emotional cap in his buttocks.

The phrase *to pop an emotional cap in his buttocks* constitutes register humor, because it presents their break-up as a euphemism. It is the speaker's choice of words that results in the humorous effect of the scene. The expression *emotional cap in the buttocks* also constitutes a metaphor, because it connects two different domains. It is a transformation of the slang idiom *to pop a cap in someone's ass*, which means "shooting someone." The shooting frame is switched to a break-up frame, and the bullet which was represented by the word *cap* is now changed to represent an ending point. The bullet is thus seen as an *emotional cap*, implying the ending point of their emotional relationship.

3.2.1.13 Anecdote

An anecdote is made through a speaker's personal experience that they share with the group in a certain context. It has been included in conversational storytelling (Norrick, 2000).

The following example is taken from *The Big Bang Theory* and it has been annotated as an anecdote. Stephanie, a young doctor, tells an embarrassing story to her boyfriend Leonard about the day she lost an earring at the hospital:

(29) Stephanie: So, we're all standing around looking at the post-op x-ray, and there it is, clear as day, right in the guy's chest cavity... one of my earrings.
Leonard: Oh, my God, what did you do?
Stephanie: What do you think I did? I discreetly slipped off the other earring, put it in my pocket and then got the hell out of there!

The humorous effect comes here from Stephanie's personal experience that she shares with Leonard. The loss of her earring, which was swallowed by one of her patients and later seen in an x-ray, is humorous because of the surprising effect of the situation. Unlike situational humor, this example is told by the speaker to her interlocutor, and the audience can only imagine it, and not *witness* it directly as would be the case with situational humor. The anecdote can serve a humorous purpose in the scene in which it appears; for instance, in the case of the example

above, Leonard is visibly amused by Stephanie's embarrassing story,[26] but it can also seem amusing for a third-party who is watching the show.

3.2.1.14 Absurd humor

Absurd humor is a type of discourse that does not make any sense in the context at hand but used deliberately to create a humorous effect. Absurdism has also been explained as the violation of the Maxim of Relevance (Attardo, 1993). It is viewed as the "amusing absence of logic" in a text (Rishel, 2002, p. 117).

In absurd humor, speakers build their utterances using elements and reactions that do not seem logical in the given context. No such cases were encountered in the present corpus.

3.2.1.15 Insider humor

In the case of insider humor, speakers share some common knowledge and their referring to it is what creates the humorous effect. The hearers access these references and are able to perceive the humorous implications created by them.

Generally, this humor type revolves around the common ground among the characters built in the series (and with which the audience is familiar), from previous episodes and scenes. This common ground can also be construed more temporarily by the (immediate) previous exchanges in the episodes. The following example is taken from *The Big Bang Theory*, and presents Leonard trying to cancel a so-called date with his neighbor Penny. He asks Sheldon to make the phone call and to invent some kind of excuse for him. After much debate between the two characters, Sheldon takes the phone:

(30) Sheldon: I'll just tell her you had a routine colonoscopy and haven't quite bounced back.
Leonard: Give me the phone!
[...]
[Next scene: a restaurant, Penny and Leonard reading the menu]
Penny: So are the rest of the guys meeting us here?
Leonard: Oh, yeah, no. Turns out that Raj and Howard had to work and Sheldon had a colonoscopy, and he hasn't quite bounced back yet.

26 Norrick (2000, p. 89) also notes that in his study, speakers tell embarrassing stories only about themselves, which is also the case in example (29).

Insider humor is present in the repeated line about the colonoscopy from which the characters (Leonard, then Sheldon) have not *quite bounced back yet*. In the first exchange between Sheldon and Leonard, this line is humorous because it represents a taboo, something you would not talk about (with a potential girlfriend, for instance). In the second exchange, between Penny and Leonard, this line refers to the previous scene which is what makes it the common ground to which the audience refers in order to get the humorous meaning. The previous scene is mandatory in order to create the common ground on which the latter scene is built. Although Penny takes it at face value (she really believes that Sheldon had a colonoscopy and has not quite *bounced back yet*), the audience who witnessed the two scenes will access Leonard's reference to the previous scene, allowing the humorous effect to happen.

3.2.1.16 Joint fantasy

Joint fantasy is necessarily interactional because it involves multiple partners who build a funny, but imaginary situation or experience (Kotthoff, 2007). Speakers will "depart from the normal turn-taking system and engage in the interactional creation of an imaginary world" (Winchatz & Kozin, 2008, p. 383).

Interestingly, in most cases of the study, joint fantasy is created by one speaker, such as in (31) below. In this scene, Sheldon is conversing with Stephanie. He excuses himself to go see Leonard, but he suggests a new topic of conversation for when he comes back. His suggestion constitutes joint fantasizing because it refers to an imaginary situation:

(31) Leonard: Um, Sheldon?
Sheldon: [to Stephanie] Excuse me. When I come back, just for fun, the subject will be alternative history. Specifically, how would the Civil War have gone differently if Lincoln had been a robot sent from the future?

In this example, humor arises from the imaginary situation constructed with an *if*-clause. It represents a remote conditional, which cannot happen. Sheldon here suggests an improbable situation and this imagined experience specifically is what creates the humorous effect. The interlocutor has to imagine a different result of the Civil War *if Lincoln had been a robot sent from the future*. The absurd hypothetical imposed by Sheldon is what generates the humorous effect. In this instance, like most of the instances in this study, joint fantasizing is constructed by one speaker only (Sheldon, in this case), and the other speakers present do not add elements that would further build this imaginary world (Leonard and Stephanie do not join in the comical hypothetical created by Sheldon). However,

in spontaneous uses of humor, joint fantasizing is created by all the elements added by the discourse participants as the conversation unfolds (Kotthoff, 2007; Winchatz & Kouzin, 2008; Feyaerts, 2013).

3.2.1.17 Stereotype humor

As the term indicates, stereotype humor revolves around the use of stereotypes and clichés of certain individuals or groups of people. These individuals are thought to bear certain characteristics attributed to them or are expected to behave in a certain way according to the stereotypes surrounding them; they thus become the butt of the joke (Davies, 1993). When using humor about certain stereotypes, "the comedian is sending the message that the stereotype is known and uses humor to dispel or affirm the stereotype" (Pacheco, 2008, p. 34).

Both series contain examples of stereotype humor, since the characters in the two series are of different origins and backgrounds. Example (32) is taken from *House M.D.* and presents two instances annotated as stereotype humor. House's first utterance represents the first instance and is addressed to Foreman (the African-American employee); the second one is addressed to Chase (who is Australian):

(32) Foreman: The guy's probably a heroin addict, explains the tachycardia which caused the pulmonary oedema.
Chase: How does an inmate on Death Row gets his hands on heroin?
Foreman: [scoffs] Are you serious?
House: The man knows prisons. [to Chase] When we've got a yachting question, we'll come to you.

The first stereotype addressed to Foreman comes as an inference drawn from Foreman's (rhetorical) question to Chase *Are you serious?* The meaning behind this interrogative is the fact that everyone knows that inmates have access to things even in prison. Foreman's assurance when uttering this comes from common ground (he assumes what everybody knows that, in prison, inmates can have access to certain things, even drugs). However, House uses stereotype humor and suggests that Foreman knows more than anyone else about prisons since he is African-American. His inference is based on stereotypes around the African-American community in relation to drug offenses (Mauer, 1999). The second stereotype is addressed to Chase, who would know a lot about yachting since he is Australian (this could be an allusion to Australia winning the Yachting Race some decades ago, or just an inference to the sunny beaches in Australia). It is also a mockery towards both doctors, since one is an expert in prisons, and the

other one in yachting, focusing on the different backgrounds from which they come. Both these stereotypical references are built through metonymical associations.

3.2.1.18 Meta-humor

Meta-humor is a type of humor that explicitly refers to certain humor indicators in a particular situation. For instance, speakers will say that they are using sarcasm or some other type of humor. The mechanisms are being referred to in the discourse.

Examples of meta-humor in the corpus (and in general) directly refer to the humorous type employed by a specific speaker. The following scene is taken from *House M.D.*, where the speaker (Chase) explicitly marks the humor type he is using (with the use of an adverb) while doing a procedure. He is referring to a convicted criminal who killed several people and was brought to the hospital for some tests:

(33) [Chase and Foreman scanning Clarence's brain]
Chase: No lesions, no aneurysms. Ironically, the mind of a killer looks completely normal.

The adverb *ironically* refers directly to what Chase sees on the scan. This irony refers to situational irony (Muecke, 1970), and not verbal irony[27] (Grice, 1975; Sperber & Wilson, 1981; Giora, 1998). The common denominator is the 'opposite' result expected in both cases. In example (33), Chase implies the expectation of a different result for the scan (i.e., one which would not look *normal*, since Clarence is not normal, but a deviation from other human beings).

3.2.1.19 Self-mockery

Self-mockery, also called self-denigrating humor, happens when speakers make themselves the target of the joke, making fun of themselves instead of other people. Instead of "potentially attacking the listener, self-denigrating humor is a relatively 'safe' way of using humor as it is primarily directed towards the speaker's face" (Schnurr & Chan, 2011, p. 21).

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27 This example can also be considered as sarcastic, since, when uttering it, Chase targets the prisoner whose brain should not look normal. Concerning meta-humor, this instance is focused on the situational humor pointed out by Chase (the fact that his scan looks normal, when it should not be).

In example (34) below, from *The Big Bang Theory*, the group of friends talks about Leonard's Facebook status update from *single* to *in a relationship*. The self-mockery is created by Howard's line, which brings his 'expertise' in the domain into focus:

(34) Penny: Leonard, congratulations!
Leonard: What for?
Penny: Your Facebook status update. Leonard Hofstadter is in a relationship.
Leonard: What? No, no, that's not right.
Howard: Oh, man, did you switch your status before she did? Speaking as an expert, way to look needy.

The focus in this example is drawn towards Howard, who is, according to himself, an expert in neediness. This is in no way flattering as would be expected of a sentence introduced by *speaking as an expert* (i.e., hearers would normally expect self-glorification in such cases, where the speaker boasts about their expertise). Self-mockery is built through the clash between these two interpretations: the expectation introduced by the phrase "speaking as an expert" and the expression "way to look needy" following it. Howard mocks himself by making himself the target of his own joke.

3.2.1.20 Self-glorification

The humorous effect of self-glorification comes from the fact that the speaker himself exaggerates the praises to his own persona.

The humorous effect comes from the analogy between the speaker and the others. The speaker will usually build themselves up and exaggerate their qualities. The following example is taken from *The Big Bang Theory*. In this scene, Sheldon thinks about the possibility of his sister having children, considering the advantages and the disadvantages of such thing happening:

(35) Sheldon: We do share DNA.
Leonard: Uh-huh.
Sheldon: So there is a possibility, however remote, that resting in her loins is the potential for another individual as remarkable as myself.

Sheldon's final utterance creates the humorous effect with the use of the comparison *as remarkable as myself*. These words explicitly refer to him, since in this instance he is the figure (i.e., the focus of attention) that is used for comparison.

As such, a potential nephew would be compared to himself. Self-glorification is also underlined by the words *however remote*, which implies the slight possibility of such a thing happening (i.e., no one can be as remarkable as himself). He does not present the situation as an open one (most likely to happen) since he explicitly uses the adjective *remote*, which further emphasizes self-glorification.

3.2.1.21 Gender humor

Gender humor is centered on issues regarding gender (e.g., female vs male, emancipation, ideas, etc.). Different works also emphasize the gender difference in the media (for instance, Bender, 1993; Gulas & Weinberger, 2006). These studies refer to appreciation and use of humor by males and females.

This humor type generally focuses on issues and analogies concerning women and/or men, and points out the superiority of one gender over the other. The following example is taken from *The Big Bang Theory* and presents Sheldon asking his neighbor Penny about her menstrual cycle.

(36) Sheldon: Where are you in your menstrual cycle?
Penny: What?
Sheldon: I've been doing some research online, and apparently, female primates, you know, uh, apes, chimpanzees, you, they find their mates more desirable when he's being courted by another female. Now, this effect is intensified when the rival female is secreting the pheromones associated with ovulation. Which brings me back to my question: where are you in...
[Penny slams door]

Firstly, this example is humorous because of the issue it addresses, mainly women's menstrual cycle. Humor arises from raising such an issue without any kind of reservation (especially since it presents a man asking a woman about such an issue, which would be considered as taboo, especially when he gives no context for such a question). Secondly, there is a humorous effect in the enumeration of female primates: *female primates, you know, uh, apes, chimpanzees, you*. In the category of female primates, Penny is put on the same level as apes and chimpanzees. This is also part of gender humor because it implies the superiority of men over women, as categorized in Sheldon's mind.

3.2.1.22 Sexual humor

In the case of sexual humor, the speaker explicitly or implicitly makes a sexual allusion. Raskin (1985) explains sexual humor as an opposition between a sexual and a non-sexual script. In this fashion, humor would arise from the clash between these two interpretations switched in the context.

In this study, sexual humor is built on different allusions to sex by the speakers. For instance, sexual humor is realized through means of polysemy in example (37) below. In this scene, the team of doctors enters House's office to deliver some bad news. House changes the focus of attention from taxes to Cuddy:

(37) House: Yes?
Kutner: You might want to turn off the TV.
House: I'm multi-tasking. Also doing my taxes. And Cuddy.

It is by exploiting polysemy that the humorous effect becomes possible in the example above. In enumerating all the things he is doing at the same time, House includes *doing Cuddy* (the female administrator of the hospital). Polysemy is at play here, where he uses his verbal mastery to add new meanings to the context. More specifically, he adds a sexual connotation to the already created humorous context. The first interpretation, taking care of the taxes, is switched when the object is also switched; *doing Cuddy* means being engaged in a sexual activity with her. The clash between these two interpretations introduced by the verb *do* is what generates humor in example (21).

3.2.1.23 Inter-textual humor

Inter-textual humor combines all the various connections and references speakers can make: literature, film, television, music, etc. It is mainly based on allusions to specific situations that are well-known and that speakers share as common ground. Norrick (1989, pp. 117-118) notes that "intertextuality occurs any time a text suggests or requires reference to some other identifiable text or stretch of discourse, spoken or written." He further remarks that in everyday conversation inter-textual references are freely borrowed without accurate documentation. This type of humor has also been compared to parody.

Inter-textual references are easily recognizable in the study because they depend on known sources, which are easy to retrieve (such as contemporaneous news and state of affairs, known books or songs, etc.). Example (38) taken from *House M.D.*, makes a reference to the Bible. The situation where House finds the cure for a patient's condition is compared to the biblical healing, explicitly stated by Dr. House's own words:

(38) House: You are healed! Rise and walk!

In most cases of inter-textual humor found in our study, the speaker facilitates the retrieval of the reference by making a previous or later allusion to the text/author/song (among others) to which it refers. This happens because the humorous effect depends upon the retrieval of the sources and the implicit analogy to these situations. House's original utterance *You are healed!* is a reference to the biblical texts and healing. Upon seeing the patient's reaction to this, Dr. House makes the reference explicit, by also sarcastically recalling the biblical praising (implying that this is what Jeff should be doing). In this case, if the hearers missed the first reference to the Bible in Dr. House's first utterance, they are able to retrieve it afterwards when House explicitly states the source.

In the overview presented above, each humor type was presented as a clearly distinct and discrete category; however, this is not necessarily so, as different types may apply simultaneously to one and the same humorous exchange. This is most likely due to the subjective nature of humor and probably also to the absence of systematic, corpus-based research in this field. Despite our attempt at arriving at a clear categorization, humor can still be analyzed from different perspectives. Even in the corpus, many examples could be interpreted from different viewpoints, and therefore annotated as different types. For instance, sarcasm can be connected to hyper-understanding, joint fantasy, exaggeration, and so on. This happens with other types mentioned above as well, because some elements combine different perspectives. For instance, in example (39) below, two humor types are combined, namely sexual humor and teasing. In this scene, a male patient starts drooling during Dr. Chase's procedure:

(39) House: What makes a guy start drooling? Chase, were you wearing your short shorts?

The word *drooling* in the first utterance gets a sexual interpretation and is aimed at Chase, who was with the patient during the procedure. The word is intended to have a metonymical association of sexual desire (SYMPTOM FOR CONDITION), which would have been an effect of Dr. Chase wearing his *short shorts* (as implied by Dr. House). This instance represents teasing because it is a playful line towards Dr. Chase, implying that the patient was actually attracted to him and started drooling. The humorous effect comes here from the transformation of a medical symptom into a sexual component of desire/pleasure. The meanings are switched, from a 'default' medical reading to a sexual one, where Dr. Chase's presence in the room would have been the element triggering the patient's

drooling. Moreover, the teasing component lets the hearers know that this is not a serious 'accusation', but rather a pretense. Dr. House knows that Chase was not wearing *short shorts*, but the situation as a whole receives the humorous interpretation because of this medical symptom that is exploited by House. Note also the use of the adjective *short* with the noun *shorts*, which emphasizes the implication that Chase might have been wearing something provocative. Example (39) draws the humorous effect from the two humor types, and, in our analysis, it will thus be included in both categories.

Another example of two combined humor types would be (40) below. This instance mixes sexual humor and hyper-understanding, where the speaker uses the previous speaker's choice of words to trump the interlocutor. Sexual humor is already present in House's first utterance, which Mark keeps in his reply as well. In this particular context, taken from *House M.D.*, House runs into Mark who is now married to House's ex-fiancée. The scene presents Mark in a wheelchair after he got into an accident.

(40) House: How's your recovery going? Gotten around to the small muscles yet?
Mark: It's not the size of the muscle; it's where you get to put it.

Clearly, House's initial remark was aimed at ridiculing his adversary by referring to the size of his muscle. The 'small' muscle in this context has a sexual connotation which Mark manages to trump accordingly: he repeats House's implication, but turns the tables on him by reminding him that it is not the size that counts, but where he gets *to put it*. In this way, he reminds House that his ex-fiancée is now married to him. The sexual meaning was already present in House's previous utterance, but hyper-understanding consists of reversing the situation where Mark, despite his 'small muscle', becomes a winner because he is the one who is now married to House's ex-fiancée. The key element allowing the switch in hyper-understanding is thus House's own choice of words. The two types (sexual humor and hyper-understanding) contribute to the humorous effect of the utterance.

There are utterances that can also be categorized in three different humor types. An example such as (41) below combines parody, stereotype humor, and insider humor. The exchange is taken from *The Big Bang Theory*, where Howard and Raj try to impress a young woman by bragging about their cultural background. Later in the episode, Howard alludes to this information when he impersonates Howard and his Indian accent:

(41) Raj: Missy, do you enjoy pajamas? [...] We Indians invented them.
[...]
Howard: [in an Indian accent] I am a fancy Indian man, we invented pajamas!

The parody comes from the impersonation of Raj that Howard delivers. The words he utters are said using an Indian accent, like the one Raj has in the series. It also constitutes stereotype humor because it refers to Indians, a particular and well-delimited group. The fact that this line comes later in the episode reminds hearers of a previous scene when Raj said to Missy that Indians invented pajamas. This thus also constitutes insider humor, because the hearers have to retrieve this reference from an earlier exchange. All three humor types therefore blend in the same utterance and they all contribute to meaning construction.

Consider also an example such as (42) below, where three humor types (inter-textual humor, sarcasm, and joint fantasy) interact as well and the humorous instance has therefore been included in these three humor categories. In this scene, taken from *House M.D.*, Dr. House and Amber try to decide a schedule for both of them to spend time with Wilson (Dr. House's best friend and Amber's boyfriend). Since they cannot reach an agreement, they come to Cuddy for a final decision.

(42) [House, Amber, and Wilson in Cuddy's office. Wilson is at the back, eating chips]
House: [to Cuddy] You are King Solomon. If you want us to cut him in half, we're cool with that.

Inter-textual humor is present in Dr. House's reference to the Bible in general, and more specifically, to King Solomon's story. Joint fantasizing is imagining this situation (similar to King Solomon's story) as a possible one, which is combined with the sarcastic agreement of such a thing happening (i.e., Dr. House's suggestion to cut Wilson in half). In the last utterance— *if you want us to cut him in half, we're cool with that*—sarcasm marks the non-seriousness of Dr. House's remark (i.e., he does not seriously suggest to cut Wilson in half) as well as a mockery toward Wilson (going back to King Solomon's story, it is implied that they do not love him enough and are not bothered by cutting him in half). In other words, in this example, the three humor types are present from specific perspectives: the analogy to King Solomon's story marks inter-textual humor, the suggestion to cut Wilson in half marks joint fantasizing, and the implied mockery and non-seriousness of this suggestion marks sarcasm.

In the corpus, these humor types are often used in combination. Evidently, we do not consider these humor types as mutually exclusive, and that is why an approach regarding the linguistic mechanisms creating the humor types seems necessary. The linguistic analysis facilitates the interpretation of these instances to a more 'microscopic' level, helping to point out the different perspectives and implications. Nevertheless, despite the absence of clear boundaries between these categories, the annotation system allows a quantitative analysis of the different humor types in a large number of instances.

3.2.2 Linguistic mechanisms

The linguistic mechanism includes a more 'microscopic' analysis for the interpretation of the humor types given above. This includes a wide range of mechanisms drawn from different semantic, pragmatic, and cognitive operations (see Chapter 2). By linguistic mechanism we refer to the linguistic realization of humor types in the corpus, such as listed below:

> key element, polysemy, structural parallelism, metaphor, metonymy, explicitation, shift of focus, reasoning, the opposite, repetition, perspective, comparison, rhetorical questions, hyperbole, homonymy, non-verbal elements.

However, since this study includes a large number of examples and different humorous situations, the approach presents some potential shortcomings. The first one would be the broad perspective from which these linguistic mechanisms are seen. As shown below, these elements are drawn from a wide range of operations and do not present a systematic way of approaching humor. Another potential problem would be that, similar to humor types, within one humor instance, several linguistic mechanisms are combined to create the humorous interpretation as explained later on (for instance, metonymy can be used in reasoning, metaphor in analogies, and so on). As such, it is difficult to dissociate the different mechanisms since they intertwine in humor types.

Although the elements presented below illustrate a broad perspective on humor, they also allow more understanding on how these instances are created in the two television-series. They help to explain the complex associations that lead to humorous interpretations. What is more, these linguistic mechanisms are recurrent in both series, which grants more focus on the creation and interpretation of humor types. These linguistic types are explained in more detail below, using examples from our own study.

3.2.2.1 Key element

Veale *et al.* (2006, p. 312) propose the following schema to account for hyper-understanding:

> S Opens with an utterance U containing a specific idea X where U serves a communicative goal G
> (e.g., G = self-praise, insult, persuasion, consolation, etc.)
> H Responds with an utterance U' containing an idea X' that is parallel to X so that U' serves a competing or contrary communicative goal ¬ G
> U' subverts U and H trumps S to the extent that X' is apropos to X

The second speaker's utterance (U') must parallel the first speaker's initial utterance (U) "in some key aspect, whether phonetic, lexical, structural or conceptual to achieve the effect of neutralizing U using the S's own language choices" (Veale *et al.*, 2006, p. 312).

The key element allows the switch between the two different readings. Speakers play on one element of their discourse which gives a new humorous interpretation to the utterance. Example (43) builds on only one element of the interlocutor's previous discourse. The scene is taken from *The Big Bang Theory* and features Sheldon with his very attractive sister to whom Howard desires to be introduced. Howard takes advantage of Sheldon's use of the verb *expect* for his own rhetorical goals, namely to introduce himself to the young woman:

(43) Howard: Sorry I'm late; I'm working on a project that may take me up on the next space shuttle.
Sheldon: How can you be late, I wasn't expecting you at all.
Howard: Nobody ever expects me, sometimes you just look and BAM... [shakes girl's hand] Howard Wolowitz.

Howard's first utterance is already a way to show off in front of the young woman. Sheldon misunderstands this, taking it at face value and explaining that he was not *expecting* him *at all*. This verb is then repeated and its meaning changed for Howard's own goals and given a humorous interpretation when Howard finally shakes the young woman's hand. By repeating one word only, Howard manages to reverse the situation and turn it in his own favor, thus succeeding to make an entrance and to introduce himself to the girl. The verb *expect* in Sheldon's interpretation has a more formal reading (to expect someone for an appointment); in Howard's perspective, this verb gets a new meaning: nobody can expect him, he comes as a surprise.

3.2.2.2 Structural parallelism

Compare the exchange in (44) with the interaction in (28) below. Also taken from *The Big Bang Theory*, the scene presents Leonard and Sheldon discussing Penny's new addiction to online gaming. Leonard's structure is repeated in Sheldon's reply, which constitutes hyper-understanding. The [...] marks dialogue in the scene that is not relevant for the humorous meaning:

(44) Sheldon: Leonard, you have to do something about Penny.
[...]
Leonard: Why should I do something, you're the one who introduced her to online gaming?
Sheldon: Well, yes, but you're the one who said 'Hello' to her when she moved in.

Compared to (27) above, the hyper-understanding in (28) is structural, and does not depend on one word only. Leonard's utterance *you're the one who introduced her to online gaming* is reversed to an earlier scene (and episode) where Leonard insisted they should introduce themselves to the new neighbor. Sheldon manages to exploit Leonard's choice of words and his fault in introducing her to online gaming is replaced by Leonard's own fault of having befriended Penny in the first place. From this new viewpoint, had this not happened, Sheldon would not be bothered by Penny right now. Similar to manipulating the verb *expect* in (27), it is the exploitation of a bigger part of the interlocutor's discourse that allows the hyper-understanding in (28) above. Sheldon here 'recycles' Leonard's choice of words to shift the intended meaning to a new, surprising one.

3.2.2.3 Polysemy

Polysemy is at play in humorous instances for the same humorous effect. The same word is used with different meanings, which gives different interpretations to the context as well as a humorous effect when these interpretations are switched. Consider example (45) below, taken from *House M.D.*, where a magician asks House to join in for a trick:

(45) Finn: Pick a card.
House: Too much trouble. Can I just pick my nose?

In (45), the switch between two interpretations is made through the verb *pick*, first used by Finn, and then repeated by House to turn the situation around and achieve a humorous effect. It is also a case of hyper-understanding, where the

second speaker takes advantage of the first speaker's choice of words in order to trump their intended interpretation. The verb *pick* is thus exploited and its meaning switched. The meaning of *choose* in Finn's utterance is shifted to *remove* in House's reply. If the first meaning refers to the deck of cards and a magic trick, the second one refers to picking the nose; hence the first situation is completely reversed by the second interpretation. The humorous effect comes from the incongruity between these two readings and the switch between them.

3.2.2.4 Metaphor

Metaphor is also a recurrent linguistic mechanism employed by speakers to create a humorous effect. Consider for instance (46) below, taken from *The Big Bang Theory*, where Raj is trying to convince Sheldon to let him date his sister. Raj, of Indian origins, refers to different people in terms of coffee:

(46) Raj: Excuse me, but I think you're missing a big opportunity here.
Sheldon: How so?
Raj: Everybody knows genetic diversity produces the strongest offspring. Why not put a little mocha in the family latte.

Defining PEOPLE in terms of COFFEE builds stereotype humor and self-glorification. Raj is *mocha*, since he is originally from India and has darker skin; Sheldon is *latte*, because he is Caucasian, and he has whiter skin. The semantics of these words and the gesture accompanying the discourse (Raj points first at himself when uttering *mocha*, then at Sheldon when uttering *latte*) make it easy to understand the metaphor. Humor proves once again creativity in language by the features these elements have in common. Hearers are able to infer that Raj only focuses on the salient features between an Indian person and *mocha* and between a white person and *latte*. The focus only falls on these salient features and not on the elements that differentiate them. Metaphors, in Lakoff and Johnson's (1980, Ch. 1) view mean "understanding and experiencing one kind of thing in terms of another." This analogy is made possible by underlining the features these things have in common. The metaphor is mediated through metonymy (see below), since human beings are defined in terms of skin color.

3.2.2.5 Metonymy

Metonymy is used frequently in humor, because it allows inferencing paths that create complex associations in humor. It can be used in stereotype humor, where certain features are generalized to associate to whole frames. Consider example

(47) below, annotated as exaggeration and stereotype humor, and built on metonymic associations. In this example, Sheldon opposes the thought of Howard asking his sister out, to which Howard replies:

(47) Howard: Is it cause I'm Jewish cause I'd kill my Rabbi with a pork chop to be with your sister?

The JEWISH frame in this example is mentioned at the very beginning of the utterance and several other features belonging to this frame are then mentioned by Howard. Stereotype humor is created through these elements from the JEWISH frame that are mentioned by Howard, namely the *Rabbi* and the *pork chop*. The exaggeration comes from the view that killing the *Rabbi with a pork chop* would mean not being Jewish anymore. From this perspective, these elements are given as fundamental features that stand for the whole JEWISH frame: the Rabbi stands for the religious figure and the pork chop stands for the sin. *Killing the Rabbi with a pork chop* (note that it is the religious figure that will get killed in this imagined scenario) would actually destroy the JEWISH frame to which Howard belongs and he could then date Sheldon's sister. The exaggeration is also created through these metonymies, because it points out to what lengths Howard would go to date Sheldon's sister.

3.2.2.6 Explicitation

Explicitation is often used in humor when speakers make something blatantly obvious. The humorous effect comes from stating the obvious or just exemplifying what the whole utterance implies. The following example comes from *The Big Bang Theory* and is an instance of self-glorification. Sheldon explains his point of view to his sister Missy about himself compared to the others:

(48) Sheldon: I'm a superior genetic mutation, an improvement on the existing mediocre stock.
Missy: And what do you mean, mediocre stock?
Sheldon: That would be you.

Self-glorification builds in (48) on the exemplification of the term *mediocre stock*. Sheldon explains to his sister his superiority relative to the others who are included in the category of *mediocre stock*, seeing himself as a *genetic mutation*. The term *genetic mutation* implies that he is one of a kind, since all the others are alike, and he is the only exception to the 'rule'. The humorous effect comes from

the blatant specification that the *mediocre stock* includes his sister and thus expressing his superiority not only over the others, but over his sister as well.

3.2.2.7 Shift of focus

Several examples were built on a shift of focus that the speaker makes in discourse. If the context/the previous speaker builds a focus on one element of the utterance, the speaker will shift this focus onto another element and this switch will create a humorous effect. It is mainly based on expectations that are created in the discourse. The following exchange is taken from *House M.D.* and revolves around House's addiction to pain killers. As a result, House is being closely followed by a police officer. In Cameron's utterance, the problem to which she refers represents his addiction to pain killers, but House shifts the focus to the police officer. The [...] mark parts of dialogue that are not relevant for the humorous implications:

(49) Cameron: I'm not writing you a script for Vicodin.
[...]
House: You're prescribing for Wilson, Wilson prescribes for me, write up a script.
Cameron: You know you've got a problem.
House: Yeah, it's got a badge and everything.

Example (49) constitutes intentional misunderstanding, where House intentionally shifts the focus of attention from his addiction to pain killers to the police officer. It can also be explained as a different perspective: Cameron's and House's. The humorous effect is achieved by the overlapping of these two different meanings. When Cameron talks about his *problem*, the hearers will infer that she talks about his addiction (hence, she refuses to write him a new script). However, in his reply, House has to add the element *badge* which metonymically refers to the police officer. The new meaning is thus accessed since the addiction is replaced by his problem with the police officer. The shift of focus employed in humor usually makes the hearers focus on a certain interpretation which is then overturned by another one (see also Chapter 2).

3.2.2.8 Reasoning

Reasoning comes generally, but not exclusively, in the form of an *if-then* clause sequence and suggests a scenario with a humorous effect. The exaggeration in (50) below, taken from *The Big Bang Theory*, is built on reasoning introduced by

an *if*-clause. In this scene, Sheldon is looking for a solution to keep Leonard and his girlfriend Stephanie together.

(50) Sheldon: How do we circumvent his inevitable rejection?
Raj: Well, if you want to guarantee his appeal to Stephanie, your best bet would be to kill all the other men on the planet.

Raj's reply builds an exaggeration in the form of reasoning: if you want to guarantee his appeal to Stephanie, your best bet would be to kill all the other men on the planet. The reasoning can be transcribed as follows:

if P, then Q

The implication is that killing all the other men on the planet would be the only solution to keep Leonard and Stephanie together. Stephanie would then have only one option since there would be no other men on the planet. The utterance combines a type one (open) and type two (remote) conditional. Since the remote conditional is not likely to happen, this also means that Stephanie will not stay with Leonard. It is by creating possible worlds in relation to the actual world that the humorous effect in achieved.

3.2.2.9 Antithesis

Humor, as already pointed out by the research in pragmatics, can come from saying something contradictory. The hearers know that what the speakers are saying is not true, which builds the pretense space (Clark & Gerrig, 1984) as well as the humorous effect of an utterance. It creates an incongruity between what is said and what is meant by the speakers, such as in example (51) below. In this exchange, from *House M.D.*, the doctors discuss House's condition. Given how he usually behaves in the series (i.e., in an antagonistic way), Chase's reply states the opposite of what everyone knows to be true:

(51) Cameron: I figured House might go back to the pills, but if he's using his cane he's right back to where he was before. Maybe even worse.
Chase: Luckily he'll handle it in a stoic, grown-up fashion—he'd never take it out on us.

Chase's reply builds on the opposite between what is said and what is meant. It constitutes sarcasm because of this incongruity and because it targets House (who is not considered *grown-up* by the rest of the team). This example draws on

the common ground between speakers and hearers who already know House usually mocks everyone around him. It builds the pretense space in which this utterance is to be understood. This linguistic mechanism is usually found in sarcasm and irony, where speakers construct their messages on something that is obviously inconsistent with the context.

3.2.2.10 Repetition

Repetition is also a linguistic means of creating humorous effects, because by repeating the same words/structures, the speakers manage to shift the intended interpretation to a new, surprising meaning. It creates layered meanings in discourse. Sometimes, the interlocutor's words are repeated, sometimes it is just the speaker repeating the same structure throughout the episode, or just a few scenes, which refer to each other and thus create complex associations in the hearers' minds. An example that falls into the first category is (52) below, taken from *The Big Bang Theory*. It builds register humor, where Leonard repeats the same word used by the interlocutor. The [...] mark dialogue that is not relevant for the present discussion:

(52) Penny: Hi, Leonard, this is Doug. Doug, this is my neighbor, Leonard.
Doug: What's up, bro?
Leonard: Not much. Bro?
[...]
Leonard: Bye! Oh, and bye, bro!

The humorous effect comes from Leonard's repetition of the word *bro* used by Doug. This word is normally used by a certain type of American groups, typically college boys. Doug is a tall and muscular young man and utters the word with a specific accent, which makes this greeting match the person. Leonard's repetition creates a humorous effect because of the incongruity it creates. As a nerd, with nerdy friends, this would not be a typical greeting that Leonard would use, and the hearers immediately perceive this mismatch (between Doug and Leonard, between the usual way of speaking of the one and the other). It is also in the way he tries to mimic the same accent that humor becomes evident.

Repetition in (52) is not used intentionally to trump or mock the interlocutor, but as a means to 'fit in'. The humorous effect resides in the different meanings given by the same structure/word according to the person uttering it and the change of perspectives. Repetition is also used intentionally for a sarcastic effect (the interlocutor's words are repeated and the discourse moved to a pretense, non-serious space). There is also a difference between repetition and taking

advantage of the interlocutor's choice of words in order to reverse the meaning, as is the case with hyper-understanding.

3.2.2.11 Perspective

The notion of perspective is also exploited in humor (Croft & Cruse, 2004). It depends on the perspective from which the situation is seen, and speakers manipulate the view to create humorous interpretations. Consider an example such as (53), taken from *House M.D.* In this exchange, a female patient, visibly attracted to Dr. House, tells him he reminds her of Ashton Kutcher:

(53) Georgia: You remind me of him [Ashton Kutcher]. Same bedroom eyes.
House: People are always mixing us up.

The sarcastic reply House gives is built on a construal operation such as the perspective from which the context is analyzed. The implication is that this mixing up goes both ways: not only do people mix House with Ashton Kutcher, but Ashton Kutcher is also told that he looks like Dr. House. The pronoun *us* makes this interpretation possible, where both perspectives are taken into account. Sarcasm thus builds on the incongruity between these two structured layers of meaning, drawing from the resemblance Georgia sees between Dr. House and Ashton Kutcher.

3.2.2.12 Comparison

Consider an example such as (54) below, built on a comparison between two situations (a romantic/sexual one and a scientific one). This exchange, from *The Big Bang Theory*, builds on joint fantasy and exaggeration, both constructed through the analogy between the sexual relation that Leonard could have with Penny and a more scientific example from their own world:

(54) Leonard: It doesn't matter. The woman's not interested in me, the woman rejected me.
Sheldon: Okay, look, I think that you have as much of a chance of having a sexual relationship with Penny as the Hubble Telescope does of discovering at the center of every black hole is a little man with a flashlight searching for a circuit breaker.

The humorous effect is achieved here through the analogy of two broader frames: SEXUAL RELATIONSHIP and SCIENTIFIC EVENT. Leonard's chance of being in a

relationship with Penny is compared to an impossible situation, that of the Hubble Telescope sent to space and finally *discovering at the center of every black hole is a little man with a flashlight searching for a circuit breaker*. The situation as such is absurd and impossible, which gives rise to the implication that Leonard does not stand a chance to engage in a relationship with Penny. Joint fantasy is created through the comical and hypothetical situation illustrated by Sheldon, while exaggeration comes from the impossibility of this scenario compared to Leonard's chances of going out with Penny.

3.2.2.13 Rhetorical questions

Rhetorical questions are sometimes used for a humorous effect, creating misunderstandings or, on the contrary, sarcastic utterances. They are not used to seek information, because the answer is obvious enough. The following exchange between Cameron and Foreman comes from *House M.D.* The two doctors are searching a patient's apartment and have been discussing the resemblance between Foreman and Dr. House (for the most part, regarding the attitude they both have). Cameron's reply is a rhetorical question, further reinforcing the resemblance between the two characters:

(55) Cameron: You really never did any drugs?
Foreman: Now this is going to be a racial thing.
Cameron: Deflecting a personal question with a joke. Gee, who do I know that does that?

The two speakers refer to a previous scene where House implied that Foreman, being African-American, is familiar with drugs. Instead of simply answering Cameron's first question, for which she actually waited for an answer, he makes reference to a previous scene and underlines the stereotype behind it (i.e., he might have taken drugs because he is African-American). Cameron's sarcastic reply first explains that Foreman deflected *a personal question with a joke*. The rhetorical question following her comment emphasizes the comparison between Foreman and House. Note also the interjection *Gee* which introduces the rhetorical question and adds a meaning of surprise. The question does not expect an answer and Cameron only uses it to stress her arguments in favor of the resemblance between Foreman and House.

3.2.2.14 Hyperbole

Hyperboles are used to amplify the importance of an event, a person, an idea, etc. It represents an exaggeration of a certain situation. Hyperboles are generally used to create irony, sarcasm, exaggeration, and self-glorification, but can also combine with different other linguistic mechanisms. In example (56) below, House is being complimented by an old woman who tells him he looks like Ashton Kutcher. When talking to the woman's adult son about her admission in the hospital, House forms self-glorification on hyperbole, exaggerating the praises he had heard:

(56) House: Your mother has had a sudden personality change. It should be checked out. I'll have a nurse come in to admit her. I'm too handsome to do paperwork.

House uses hyperbole when talking about the paperwork needed for the patient's admission into hospital. He thus refers back to the compliments he received from the patient before and exaggerates the praises: he is *too handsome to do paperwork*. House thus reinforces the compliments he received in a humorous way. The compliments she used before (the resemblance to Ashton Kutcher, his sexy beard, etc.) are emphasized by his being *too handsome* to do paperwork.

3.2.2.15 Homonymy/Homophony

Homonymy or homophony refers to the resemblance between different words, either in spelling or in sound. Homonyms can create misunderstandings, which is the case in our study. Only one such case was encountered in the data, which is example (17) above, where Penny's OIC is mistaken for an acronym by Sheldon. The resemblance between OIC and *Oh, I see* is what creates the humorous effect of the scene being based on homophony.

3.2.2.16 Non-verbal elements

In some cases, such as (57) below, no verbal element is at the center of the humorous utterance. Humor comes from an incongruity in the situation that the hearers witness. In this particular context, taken from *The Big Bang Theory*, Penny goes into her neighbors' apartment. She sits on the sofa and makes herself comfortable, but Sheldon does not agree with how she chooses to sit. The situation the hearers witness is humorous, although there is no dialogue:

(57) [Penny sits on the other end of sofa. She puts her feet on the table. Sheldon looks disapprovingly. She removes feet from table.]

In cases such as these, the humorous situation does not rely on any verbal element. This is mainly the case with situational humor (see 3.2.1. Humor types above), where the hearers have access to the whole context in which the scene takes places, and it is the whole situation that gives the humorous effect of the scene.

Similar to the humor types presented above, these linguistic mechanisms are often used in combination and not alone. Consider example (58) below, from *The Big Bang Theory*, which constitutes hyper-understanding, combining a key element with polysemy. The switch in meanings is achieved through the word *cuckoo*, used first as a noun by Sheldon and then as an adjective in Missy's reply. Sheldon here glorifies himself, talking about his superiority over the others, and especially over his sister Missy:

(58) Sheldon: I always thought I was more like a cuckoo bird. You know, a superior creature whose egg is placed in the nest of ordinary birds. Of course, the newly hatched cuckoo eats all the food, leaving the ordinary siblings to starve to death. Luckily for you, that's where the metaphor ended. Missy: I thought it ended at cuckoo.

The use of the noun *cuckoo* is explained by Sheldon in his comparison with the bird. What he shares with the cuckoo bird would be the superiority over others, hence the use of elements such as *a superior creature*, *the ordinary siblings*. In Missy's reply, this meaning is reversed. When Sheldon announces that the metaphor ended (the analogy between him and the cuckoo bird), Missy replies that she thought *it ended at cuckoo*. This switches the metaphor to an adjectival use of *cuckoo*, meaning 'crazy.' Now, from the perspective of the linguistic mechanisms discussed above this can be seen as: (i) a key element allowing the switch in interpretations, (ii) polysemy (since Missy plays on two meanings of the same words), but also (iii) metaphor built in Sheldon's discourse. This exchange can be seen from all these perspectives.

These linguistic mechanisms presented above represent general and broad operations through which humor is created. They show the various ways in which these humorous instances are achieved in discourse by pointing out the dynamics of meaning construction built by the different interlocutors. Interestingly, these linguistic operations are used repetitively in the corpus, which means that the same mechanisms are used for the same humorous result. In both

series, as illustrated by the examples above, the speakers go through the same techniques to shift the meanings to humorous ones.

3.2.3 Gestures

In his article regarding the pragmatics of humor and the search for relevance, Yus (2003, p. 1299) remarks that there are clues in the context "that indicate that what is being said or about to be said, should not be taken seriously." Thus, deciding between the different meanings of utterances involves including all the information about the given context: the teller, the audience, the tone, etc. (cf. Davies, 2008, pp. 382-383). Given the importance of multimodality that such a view entails, the analysis of the data also includes the analysis of gestures the speakers use in discourse.

Recent studies have shown how gesture is inextricably bound up with speech.[28] As people learn to speak, they also learn to use gestures, and hence "gesturing is part of talking" (Haviland, 2000, p. 15). In other words, gestures are symbolic because not only do they accompany speech, they also complete it. As underlined by, among others, McNeill (1992) and later by Butcher and Goldin-Meadow (2000), gesture and speech are part of a single idea. Speakers use gestures to make something that is being said more precise or to make it exhaustive (Kendon, 2000, p. 51).[29]

Before clarifying how gestures relate to humorous interactions, we need to clarify the different types of gestures, for which the classifications in the literature tend to vary. McNeill (1992) and Müller (1998) distinguish between (a) *discourse* gestures, (b) *performative* gestures, and (c) *referential* gestures. Discourse gestures are used to mark emphasis, performative gestures are used when accepting or refusing an offer or idea, and referential gestures refer to some abstract or even concrete idea or object. Krauss *et al.* (2000, pp. 262-269) suggest an alternative way of categorizing gestures which can be: (a) *symbolic*, (b) *deictic*, (c) *motor*, or (d) *lexical*. The first category concerns emblems, i.e., gestures that have a fixed meaning.[30] An example would be the *okay* gesture (i.e., open palm vertical, with fingers up, while thumb and index are united to create a circle, like an O), which

28 See for instance Kendon 1980, 2000; McNeill, 1985, 1992, 2000a, 2000b, 2008; Calbris, 1990, 2008; Cienki, 1998, 2008; Müller, 2008; Gibbs, 2008.

29 See also Peirce (1960), Parrill (2008), Mittelberg (2008) for an account of metaphoricity in gesture.

30 See Parrill (2008) for further details on emblems and conventional gestures.

can be correctly understood by speakers of different languages. The reason for this is that emblems have entered cultural convention and people are used to seeing and using them. The second category, deictic gestures, refers to gestures that are used to indicate or point at something, and generally consist of the extension of the index finger. For instance, in a context where a speaker uses personal pronouns (*I, they*), pronouns (*this, that*) or adverbs (*here, there*), they could use gestures (involving their entire hand or just the index finger) to point at the object they are talking about (e.g., *that book, the man over there*).[31] The third category, motor gestures, concerns rhythmic movements that have no connection to the semantic content; they are used with the speech prosody, as beats which mark emphasis because they fall on stressed syllables. Müller (2008, p. 239) observes that such gestures clearly direct the hearers' attention to a specific focus. Generally, beat gestures are gestures of the hand that speakers make in the rhythm of the speech (Liddell, 2003). The last category, lexical gestures, comprises more complex gestures. Their form changes and, unlike motor gestures, they do bear an important connection to the (lexical) semantic content of the discourse. As noted by Krauss *et al.* (2000, p. 269), this last category facilitates 'lexical retrieval'. The gesture that the speakers use will derive from "features that are part of the lexical item's semantic" (Krauss *et al.*, 2000, p. 272). For an object that is round, for example, speakers might use manual gestures to express this feature of roundness. Importantly, the different categories that Krauss *et al.* distinguish are not mutually exclusive; speakers could use all of them in one single context.

Some of these categories are relevant for the understanding of humorous messages, as they often accompany humorous speech. These generally include *discourse* gesture as well as *deictic* ones. When speakers use gestures, the attention of the public is generally drawn towards some element in the discourse. In example (59) below, from *House M.D.*, the speaker points at two different characters when using humor. The pointing gesture adds to the shift of focus on which his teasing builds, since it first draws the attention to Kutner and then to Cole, sitting next to him. Finn, a magician, asks for a volunteer for his next act. Pointing is underlined in the text (see also the video stills in the Figure[32] below).

31 It is conventional to mark the occurrence of gestures via underlining.

32 The video stills used to represent facial expressions in this book were taken either from *House M.D.* (© Heel & Toe Film, Shore Z Productions, Bad Hat Harry Productions, Moratim Produktions, NBC Universal Television, Universal Media Studios) or *The Big Bang Theory* (© Warner Bros Television & Chuck Lorre Productions).

(59) Finn: I'm going to need a volunteer.
Kutner: [immediately puts his hands in the air, as high as he can get it] Ohh, ohh, ohh!
Finn: The guy dislocating his shoulder, right there.
[The spotlight makes its way over to Kutner]
Kutner: Yeah!
Finn: Could you tell the guy next to you to come up?

Fig. 8: Pointing in example (59) while saying *dislocating his shoulder*

Fig. 9: Pointing in example (59) while saying *next to you*

In this example, pointing plays an important role in the shift of focus that draws the humorous effect of the scene. Finn points first at Kutner, this way drawing the attention to him (note also that the spotlight shows him as well). The attention of the viewers will be on Kutner whom they will think is the chosen volunteer for Finn's act. However, Finn shifts the focus from Kutner to Cole, also by pointing while speaking. When uttering *Could you tell the guy next to you*, he points at Kutner when saying *you*, and at Cole when saying *next to you*. This deictic gesture reinforces the shift of focus, showing the viewers exactly whom he means. In Figure8, it can be seen that Finn points at Kutner (who is raising his hand), and then points again in Figure 9 when uttering *next to you*.

In humor analysis, Muecke (1978) refers to such markers of humor as kinesic markers; they include winks, nudges, and "straight looks" (idem, p. 369).

Importantly, these gestures are not restricted to hand movements, but mainly include the raising of eyebrows and frowning (see Figure10), head tilts (Figure 11), head nods (Figure 12), etc. As the analysis reveals, gestural elements such as these (which turn out to be the most frequent ones) can be important triggers (cf. Tabacaru & Lemmens, 2014) guiding the listeners to picking up the humorous implications.

Fig. 10: Raised eyebrows (left) and frowning (right)

Fig. 11: Head tilt in the corpus

Given their frequency, they play a role in the switch from a discourse base space (serious interpretation) to a pretense space (non-serious interpretation) in these humorous interactions, as shown later on.

Fig. 12: Nod in the corpus

3.2.4 Prosody

When it comes to prosody, as observed by Grice (1989) and by Sperber and Wilson (1988), word and sentence stress plays a role in the linguistic prominence of a given element of the sentence. If a speech unit stands out more distinctly than others, it is said to be more prominent (cf. Nyqvist Goës, 1974). While this prominence could be made manifest at a number of levels (i.e., at the level of segments, syllables, words, phrases, or sentences), the data show that in the case of humor, stress is invariably used on words which generate a number of implicatures, relevant to the given context. In the case of humor (Rockwell, 2000; Pickering *et al.*, 2009; Archakis *et al.*, 2010), it turns out that two factors are important: stress and pauses. They will be briefly explained below.

Stress refers to tonic prominence attributed to certain words. Cutler (1984, p. 89) remarks that "when a sentence is produced the speaker assigns accent according to what he considers to be the more or less important parts of what he is saying". Cutler and Fodor (1979) show that the primary stress of a sentence bears semantic meaning (see also Bolinger [1958] on the aspects of pitch in English). In other words, if a speaker chooses to put the primary stress on a particular chunk of the sentence, then that is the most informative part of his utterance in the given context. If there is a shift from the normal stressed syllable, one of the reasons is, as noted by Bolinger (1986, pp. 91-92), "to suggest the idea 'This is not the same as that other word' which the hearer might be supposed to have in mind." Imai

(1998, p. 71) suggests that this is simply a matter of attention, because "what is distorted or is rendered less than normal, *verbally or otherwise*, will attract more attention than its undistorted, 'normal' counterpart" (emphasis added). Accordingly, special attention is drawn to pitch placement in the sentence. As shown for instance by Roach (1991), sentence stress (also called nucleus placement, with nucleus defined as being the most prominent syllable of a tone-unit) can distinguish between different meanings of the same utterance. Examples (60) and (61) below highlight this distinction, where the capital letters express the position of the nucleus (Roach, 1991, p. 173):

(60) I have plans to LEAVE.
(61) I have PLANS to leave.

The difference between these two examples (as also detailed by Gut, 2009, p. 112), is that, in example (60), the most prominent word is the verb *to leave*, and thus the meaning of the sentence would be "I want to leave." In contrast, in example (61), the noun *plans* is in semantic focus, which changes the meaning of the utterance to that of having some plans (drawings, for instance) to leave somewhere. A shift in the position of the nucleus suffices to convey a different meaning. Moreover, as observed by Seto (1998, p. 248), prosody[33] can mark an exaggeration that can be used in irony, as in example (62) below:

(62) A: Sorry, I haven't enough money.
B: You ALWAYS haven't enough money.

The exaggerated stress that marks the adverb *always* in example (46) expresses irony. The syllable can be lengthened accordingly (Seto, 1998, p. 248) to give the same exaggerated effect to the utterance. This marks the pattern in A's behavior, who never has enough money. Although the use of an element such as *always* is already a marker of irony (Seto, 1998, p. 242), it is the stress on this element that creates the exaggerated effect of it.

We argue that this holds for humor in general, when a simple change of tone or a specific intonation can provide a humorous result to the context at hand. Consider for instance example (63) below, taken from *The Big Bang Theory*, where stress on particular elements of the utterance creates a humorous effect. In this

33 Seto also mentions Grice's (1989) denial of an ironic tone of voice which would always be used with irony. However, he does admit that some prosodic features are often used in irony, such as in example (62).

scene, Penny, Leonard, and Sheldon finish watching the movie *How the Grinch stole Christmas!* The humorous instance builds on Sheldon's misunderstanding of Penny's (and the movie's) metaphor of a growing heart. The stressed word is marked in capital letters.

(63) Penny: Oh, I always tear up when the Grinch's heart grows three sizes.
Sheldon: Tears seem appropriate. Enlargement of the heart muscle, or hypertrophic cardiomyopathy, is a SERIOUS disease which could lead to congestive heart failure.

The metaphor used in the movie where the Grinch's heart literally grows three sizes in order to show the change of his ways and the final enjoyment of the Christmas festivities (BIGGER HEART IS BIGGER FEELINGS) is repeated by Penny at the beginning of this exchange. Sheldon's literal perspective of this phenomenon brings the focus on the dangers of a heart growing in real life. The fact that he stresses the word *serious* further underlines the seriousness of such a thing happening in real life. It is almost as if Sheldon intentionally focused on the serious space and not the pretense space of this metaphor (it is to be noted that Sheldon is not at all sarcastic in his comment). Although this metaphorical sense is accessed by Penny and also by the hearers (i.e., we understand that she starts to tear up because of the emotional side of the story and the Grinch's change of ways), Sheldon brings the focus on the literal dangers of a possible *enlargement of the heart muscle*. These two different perspectives of the same event create a humorous effect because of their incongruity.

As such, in the case of humor analysis, it has been said that prosody can mark a different tone of voice that is used with sarcasm or irony (Clark & Gerrig, 1984; Sperber, 1984; Haiman, 1998). Similarly, Rockwell (2000) carried out some experiments revealing that speakers are able to recognize a sarcastic tone used in sarcastic utterances (for the purpose of this study, we consider sarcasm to be a case of humor, even if the issue is much more complex than this, cf. Hidalgo Downing & Iglesias Recuero, 2009). This is a point to which we return later on. Rockwell's (2000, p. 493) experiment nicely shows that "sarcasm appears to exhibit a clear pattern of vocal cues." Similarly, Boxer (2002) and, later, Cheang and Pell (2009) note that speakers raise the fundamental frequency of their voice when using sarcasm.

The other element considered in the data set was pauses. Pickering *et al.* (2009), Attardo and Pickering (2011), and Attardo *et al.* (2013b) mention the importance of pauses in humorous conversations. For the collection of humorous instances, pauses do occur in 95 cases (with a frequency of 15.6%; see below).

Although they are not repetitively used to predict humor, they do play a role in switching the discourse base space to a humorous, non-serious space, as in the pun in example (64) below. In this scene, taken from *The Big Bang Theory*, Howard inquires what happened after Leonard went to ask Leslie out:

(64) Howard: So, how did it go with Leslie?
Leonard: Oh, we tried kissing but the earth didn't move.
(Pause 00:08:49.79 - 00:08:51.266)
Leonard: I mean any more than the 383 miles that it was going to move anyway.

The pun is based on the literal and metaphorical senses of the verb *to move*. The metaphorical sense is actually accessed first in this scenario, followed by the literal sense after the pause made by Leonard. In the expression *the earth didn't move*, the hearers infer the idiomatic sense associated with the kiss shared by Leonard and Leslie. In such a romantic context, the earth moving is a mental image which depicts FEELINGS AS A (STRONG) NATURAL FORCE. The kiss should have been so strong as to make the earth move. The literal sense of the verb *move* is activated when Leonard adds *I mean any more than the 383 miles that it was going to move anyway,* which refers to the actual process of the earth moving. The switch between the two meanings is facilitated by the rather short pause (0.2 seconds) between the two utterances, marking it more clearly. The hearers are given the time to access the idiomatic meaning, and then the new meaning is added after the brief pause. The humorous effect comes from the (unexpected) switch between these two interpretations. Although the idiomatic sense is accessed first by the hearers, the incongruity between the two interpretations creates a humorous effect.

Consider also the sexual humor in example (65) below. This exchange is drawn from *House M.D.*, and presents Dr. House talking to Foreman about Cuddy, the female administrator of the hospital:

(65) Foreman: You want to punish Cuddy for hiring me without...
House: I like Cuddy.
(Pause 00:03:34.855-00:03:36.303)
House: Parts of her.

Similar to above, two readings are available for the hearers to access. The pause distinguishes the two interpretations and marks the switch between them. Even though the pause is rather small (approximately 0.2 seconds), it gives the hearers

enough time to process the first reading and then to subsequently switch to the new one. The line *I like Cuddy* refers to the person, and House's appreciation of her. After the pause, this meaning is switched to a sexual one, where House only likes *parts of her*. The sexual humor is in this example based on metonymy, where House switches the focus from the whole person to *parts* of her (WHOLE FOR PART).

Sometimes, stress and pauses are combined in humorous utterances for the same effect. Consider example (66) below, taken from *House M.D.*, which presents an exchange between Dr. House and Finn, a magician. In this example, both stress and pause are used in order to create different humorous effects. The humorous example is built on sarcasm and hyper-understanding, which is triggered by the adjective *actual*. This adjective is also stressed (indicated by capital letters) and sarcasm comes after the pause:

(66) House: How did you do the trick?
Finn: Oh, if I explain it, it becomes mundane, and you lose the actual magic.
[...]
House: MAgic is cool. ACTual magic is oxymoronic.
(Pause 00:16:14.460 - 00:16:15.680)
House: Might not even be oxy.

In this example, the stress is on the element allowing the switch in hyper-understanding (*ACTual*). The adjective is repeated from Finn's previous utterance where he uses it to talk about magic. Dr. House plays on the incongruity between these two concepts together: *actual* (i.e., real) and *magic* (i.e., making things happen that are usually impossible). The stress in Dr. House's utterance shifts the semantic focus to this particular element taken from Finn's previous utterance, and underlines the incongruity between the two ideas together. Moreover, the brief pause occurring in the same utterance marks the two different humor types. If the stress is used here to focus the attention on hyper-understanding and reversing Finn's intended interpretation, the pause in House's speech marks the separation of the two meanings. The utterance *Might not even be oxy* refers back to the adjective *oxymoronic* used by House to describe *actual magic*. House creates a play on words where the prefix *oxy-* taken off from the word *oxymoronic* would leave the adjective *moronic*. This targets Finn specifically since he believes in *actual magic*.

Having taken up stress and pauses in the analysis of the data, we succeed in showing how these elements help an audience to interpret the humorous intention of the speakers.

3.3 Implementation in ELAN and annotation of the data

3.3.1 ELAN annotation template

As explained above, 860 humorous instances have been selected from different episodes of the two series: 438 for *House M.D.* and 422 for *The Big Bang Theory*. The selected instances were subsequently annotated using a detailed coding scheme via the annotation tool ELAN, an annotation tool that allows to make complex annotations on video and audio data.[34] To be able to do that, the selected episodes first had to be modified from .vob files (available on DVD) to .wmv files, a file format that ELAN can handle.[35] Each episode is structured into a different ELAN file, which amounts to a total of 15 files.

This analysis includes a five-step process of the data: careful selection of the humorous instances, categorization regarding the humor type (which, as seen above, can combine different categories of humor), taxonomy regarding the linguistic realization of the instances, gestural analysis, and prosodic markers. This process involves a careful investigation of the elements creating the humorous exchange, allowing this way a more holistic approach of interactional humor. Regarding the selection of the humorous instances, there is a distinction between the two series: *The Big Bang Theory* is a sitcom, using a laugh track[36]; hence the humorous instances were easily identifiable compared to *House M.D.*, a drama, which does not use a laugh track for this reason. For *House M.D.*, a random sample was used in reliability tests where participants[37] had to note the instances on a 1 to 5 scale depending on the (non)humorousness of the exchanges (where 1-not at all humorous, and 5-extremely humorous). Both humorous and non-humorous exchanges were used for the reliability tests and they were randomly selected from the final data. The results show there is 84% convergence, with 16% disagreement (out of which 12% of the examples were rated as humorous by participants, when they were considered non-humorous in the corpus, and 4% of the

34 ELAN is a tool for video annotation freely available for researchers from the Max Planck Institute for Psycholinguistics, The Language Archive, Nijmegen, The Netherlands (http://tla.mpi.nl/tools/tla-tools/elan/); see Brugman & Russel (2004); Wittenburg *et al.* (2006); Sloetjes & Wittenburg (2008). We have used version 4.5.1.

35 We used Prism Converter for the modification of the file extensions.

36 The point of the laugh track and the selection of the humorous exchanges in this way would be to see where the audience is supposed to find something humorous.

37 The participants were chosen randomly, on a volunteering basis (mostly, students and staff members from Université Lille 3).

examples were considered non-humorous, when they had been annotated as humorous in the corpus).

In ELAN, the annotations are organized on different levels (called 'tiers' in ELAN); these annotations are time-aligned with the audio-visual stream. In the coding scheme, the annotations have been structured on five tiers, as shown in Figure 13 below: (i) the transcription of the example, (ii) the humor type, (iii) the linguistic mechanism, (iv) the gesture, and (v) the prosodic elements. The last two tiers capture the multimodal analysis of the data.

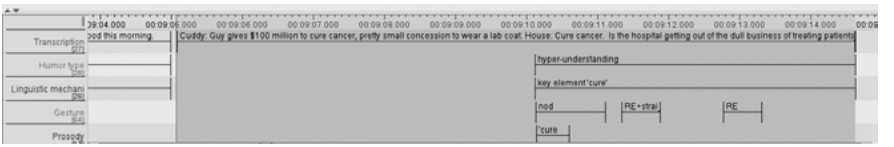


Fig. 13: An example of a humorous exchange as coded in ELAN

The highest tier is the **verbatim transcription** of the examples. The verbatim transcription also includes the characters' names and what the previous speaker had said, thus providing the common ground (background knowledge and previous discourse) shared by the interlocutors. For example, in Figure 13 above, the transcription tier gives the previous discourse (said by Cuddy) to House's utterance, that is the instance initiating the humor and thus annotated as such (in this case, hyper-understanding). Integrating both interlocutors in the analysis provides a much clearer perspective on how humor builds in discourse and is needed for the layered-meaning built in interaction.

Sometimes, if the extracted instance referred to a particular scene, the scene was described between brackets, as shown in Figure 14 below.

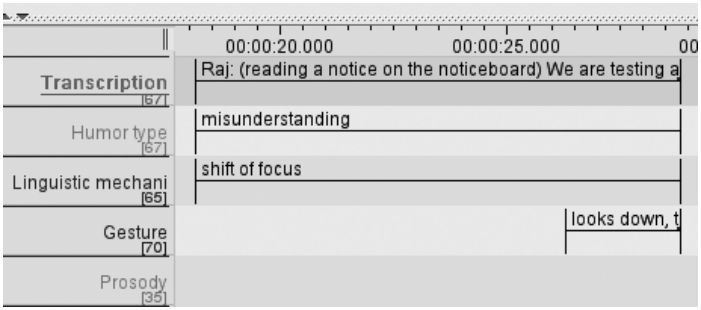


Fig. 14: Situation identified between brackets on the transcription tier

The second tier identifies the **humor type** as described above. Figure 13, for instance, illustrates a case of hyper-understanding, while Figure 14 illustrates a case of misunderstanding (see the section about Humor types for description about the categories used).

The third tier identifies the **linguistic mechanisms** that underlie the humor type. For example, in Figure 13 the linguistic mechanism is the key element allowing the switch in interpretation, whereas in Figure 14 it is a shift of focus (see the section about linguistic mechanisms for a full classification of the data in the corpus).

The two last tiers present the multimodal perspective on the data, coding **gesture** and **prosody**. On these tiers we identify the elements that serve as multimodal triggers for the humorous interpretation. Later on, we provide a more detailed analysis on the important role that these gestural elements play in highlighting the humorous effect of a certain message and more importantly, the humorous intention of the speaker. To our knowledge, this is the first study on humor that applies a multimodal approach and includes the analysis of such a large corpus of examples. The different tiers allow us to see how the different humor types interact with different linguistic mechanisms.

3.3.2 Search and data annotation

Figure 15 below gives an illustration of how the structure of the data in five tiers (verbatim transcription, humor type, linguistic mechanism, gesture, and prosody) can be easily exploited via the grid to obtain a list of humor types, for example, and the corresponding video excerpt (on the left side of the screen). ELAN

provides an easy access to the data according to the tiers on which they are organized.

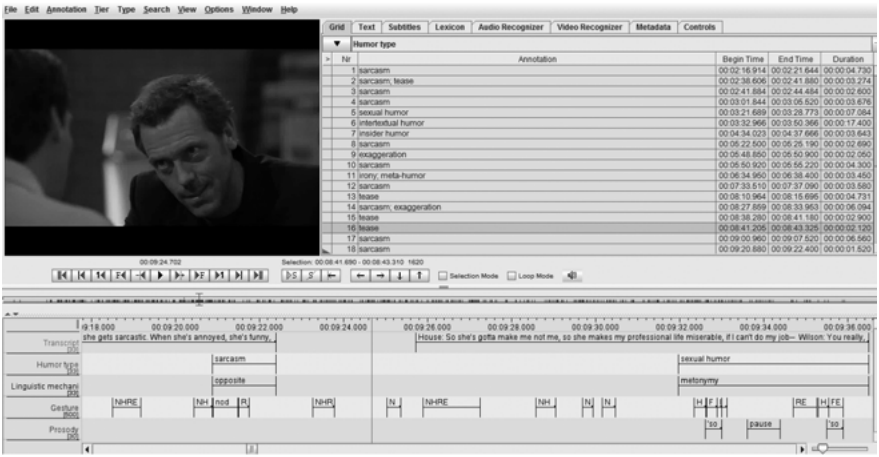


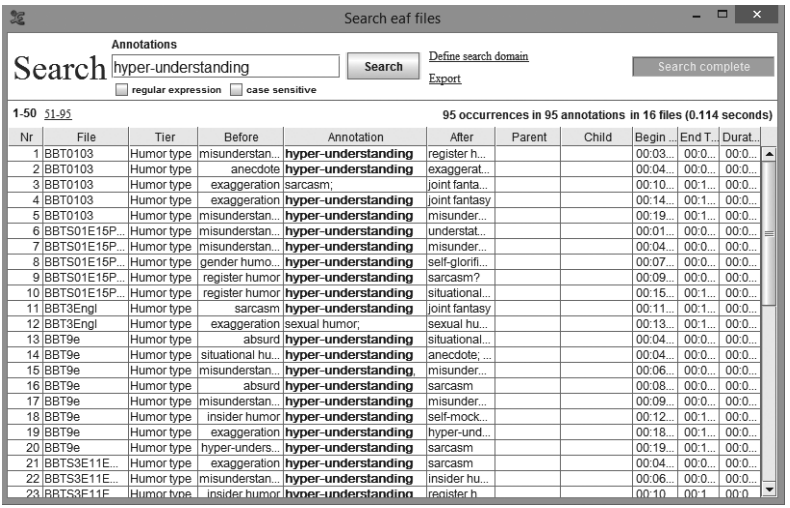
Fig. 15: Instances of humor presented via the grid in ELAN

Figure 16 below shows another way in which the data can easily be followed while the video is being analyzed and annotated via the subtitle feature, which unfolds four tiers while the video is playing.

Fig. 16: The subtitle window in ELAN

Each ELAN file can be as big as approximately 400MB or even 1.5GB for certain files depending on its quality (video and audio). The final corpus, with all 15 files (which represent the 15 selected episodes), is therefore made of approximately

15GB. However, when browsing for certain features through the entire corpus, ELAN provides easy access to the tiers and annotations we are looking for via the *Search* tool that allows searching for annotations with the use of a keyword, as shown in Figure 17 below. The software provides information as to the location where the annotation is made in the file(s), the duration of the requested annotation, the tier(s) on which it appears, and the annotations that precede and follow the requested keyword. Just above the table, the total number of annotations with that keyword is given. By simply clicking on the given annotation, ELAN opens the file with the exact location of the requested annotation. This is why it is important to be consistent in the coding of annotations, across different files. Punctuation is also relevant, since ELAN searches for the exact text that was used in all the annotation files.



Nr	File	Tier	Before	Annotation	After	Parent	Child	Begin ...	End T...	Durat...
1	BBT0103	Humor type	misunderstan...	**hyper-understanding**	register h...			00:03...	00:0...	00:0...
2	BBT0103	Humor type	anecdote	**hyper-understanding**	exaggerat...			00:04...	00:0...	00:0...
3	BBT0103	Humor type	exaggeration	**hyper-understanding**	joint fanta...			00:10...	00:1...	00:0...
4	BBT0103	Humor type	exaggeration	**hyper-understanding**	joint fantasy			00:14...	00:1...	00:0...
5	BBT0103	Humor type	misunderstan...	**hyper-understanding**	misunder...			00:19...	00:1...	00:0...
6	BBTS01E15P...	Humor type	misunderstan...	**hyper-understanding**	understat...			00:01...	00:0...	00:0...
7	BBTS01E15P...	Humor type	misunderstan...	**hyper-understanding**	misunder...			00:04...	00:0...	00:0...
8	BBTS01E15P...	Humor type	gender humo...	**hyper-understanding**	self-glorifi...			00:07...	00:0...	00:0...
9	BBTS01E15P...	Humor type	register humor	**hyper-understanding**	sarcasm?			00:09...	00:0...	00:0...
10	BBTS01E15P...	Humor type	register humor	**hyper-understanding**	situational...			00:15...	00:1...	00:0...
11	BBT3Engl	Humor type	sarcasm	**hyper-understanding**	joint fantasy			00:11...	00:1...	00:0...
12	BBT3Engl	Humor type	exaggeration	sexual humor;	sexual hu...			00:13...	00:1...	00:0...
13	BBT9e	Humor type	absurd	**hyper-understanding**	situational...			00:04...	00:0...	00:0...
14	BBT9e	Humor type	situational hu...	**hyper-understanding**	anecdote; ...			00:04...	00:0...	00:0...
15	BBT9e	Humor type	misunderstan...	**hyper-understanding**	misunder...			00:06...	00:0...	00:0...
16	BBT9e	Humor type	absurd	**hyper-understanding**	sarcasm			00:08...	00:0...	00:0...
17	BBT9e	Humor type	misunderstan...	**hyper-understanding**	misunder...			00:09...	00:0...	00:0...
18	BBT9e	Humor type	insider humor	**hyper-understanding**	self-mock...			00:12...	00:1...	00:0...
19	BBT9e	Humor type	exaggeration	**hyper-understanding**	hyper-und...			00:18...	00:1...	00:0...
20	BBT9e	Humor type	hyper-unders...	**hyper-understanding**	sarcasm			00:19...	00:1...	00:0...
21	BBTS3E11E...	Humor type	exaggeration	**hyper-understanding**	sarcasm			00:04...	00:0...	00:0...
22	BBTS3E11E...	Humor type	misunderstan...	**hyper-understanding**	insider hu...			00:06...	00:0...	00:0...
23	BBTS3E11E...	Humor type	insider humor	**hyper-understanding**	register h...			00:10...	00:1...	00:0...

Fig. 17: Annotations in different ELAN files

Using the *Compare* tool, one can compare the different tiers and the different annotations that co-occur (this is relevant in order to see how different linguistic mechanisms are at the center of certain humor types or which gestures or prosodic features co-occur with certain humor types); this tool is illustrated in Figure 18 below. This feature allows us to compare the different tiers (two every time) in each file.

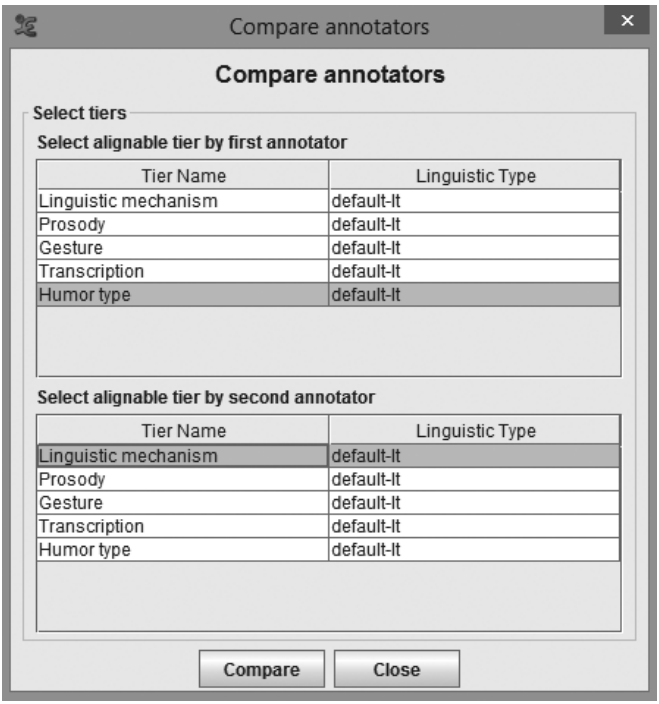


Fig. 18: Compare annotators

The statistics for one file only or for all files, according to the domain that is defined in the search (which can be several files or all files in the corpus) are also easily accessible in ELAN (Figure 19 and Figure 20). The statistics in Figure 19 depend on the tier one seeks. Several features can be changed for different results, depending on the annotation, tier, linguistic type, participant, and annotator. These features are also available in the statistics for all files in Figure 20, which would give the same results compared to the entire corpus.

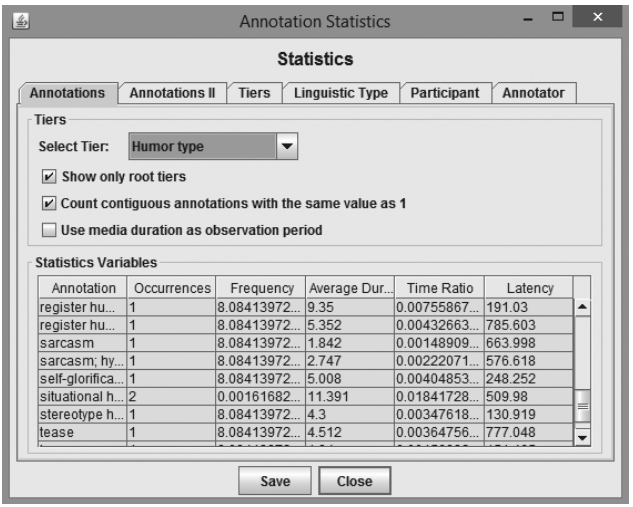


Fig. 19: Statistics for one file: humor types

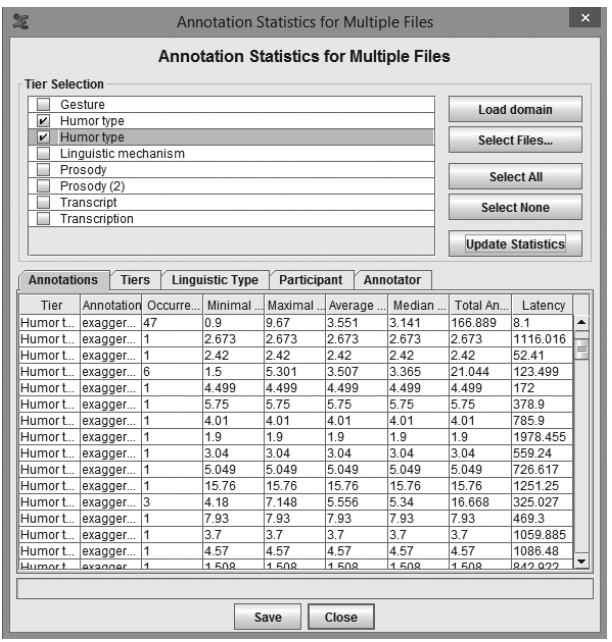


Fig. 20: Annotation statistics for multiple files: humor types

By typing the name of the annotation (such as 'hyper-understanding' in Figure 21) and selecting the specific tier, ELAN allows a selective process for a more targeted search of the data. The results are given in Figure 22 below.

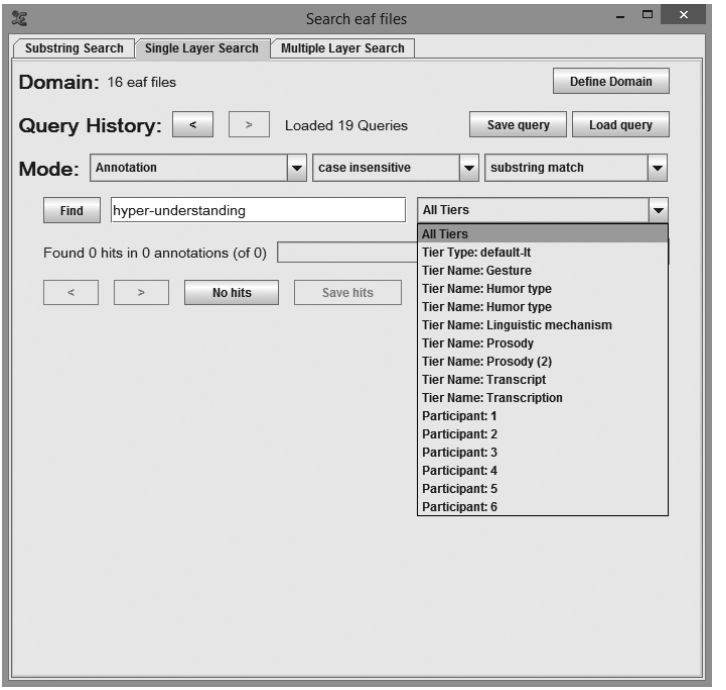


Fig. 21: Single layer search in ELAN: search window

This specific search for hyper-understanding below was made only according to the humor type, as shown in the case *Tier Name*. ELAN counts the number of annotations encountered in all ELAN files defined as Domain (i.e., 95 occurrences in all files). This query is relevant because sometimes humor arises from the misunderstanding of certain humor types, such as sarcasm. The linguistic mechanism is annotated as such, including the word 'sarcasm', which would give a higher number of annotations in the query for 'sarcasm'. By refining the search according to the *Tier Name*, these annotations are found only relating to one field and on one tier only (humor type, or linguistic mechanism involved).

Fig. 22: Singe layer search in ELAN: results

One can also compare the co-occurrence of different annotations on several tiers via the *Multiple Layer Search* tool, as shown in Figure 23 below. The different annotations made on different tiers can be compared (in this case, the number of times exaggeration is made through metonymy). Several columns and layers can be added in order to search for the overlapping of these annotations. In Figure 23 below, exaggeration is overlapped with metonymy, but this feature can be changed to no overlap, surrounding, fully aligned, within, left/right overlap. It provides a closer look into how these different mechanisms intertwine in the creation of humorous utterances.

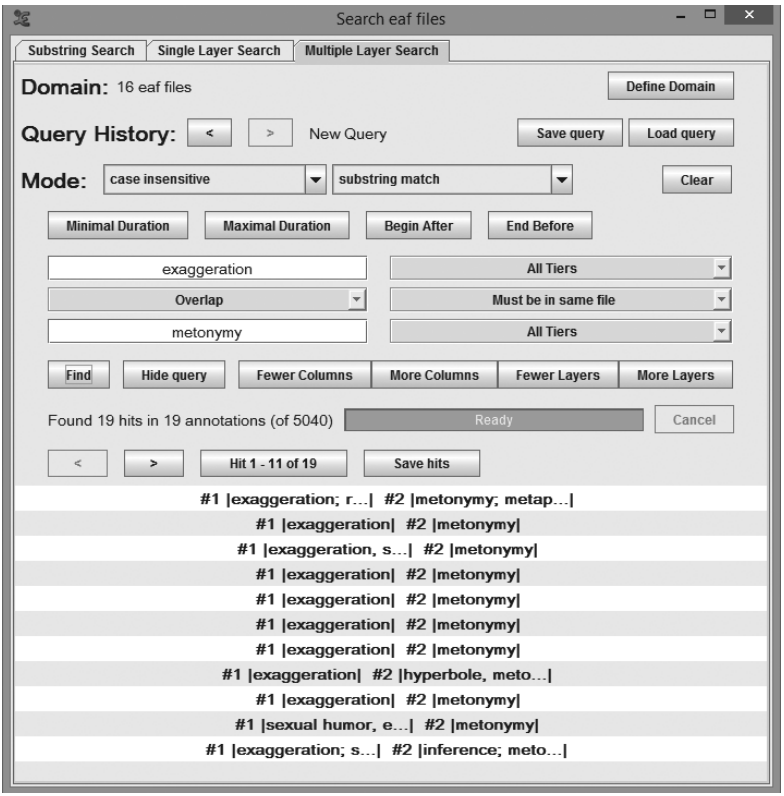


Fig. 23: Multiple Layer Search in ELAN

To sum up, ELAN provides an easy access to the data annotated in all the files, which is especially helpful with such a large amount of data. The results are accessible for any query made in the software, but it is important to stay consistent in the way the data are transcribed and especially annotated (even pauses can sometimes give different results). It was important to not use many abbreviations; when these were used, they were annotated using the same value as to not get different results.

3.4 Quantitative results

3.4.1 Overview of humor types

Since we have marked in the corpus all possible humor types that can be applied to a given example (see above how this has been done in ELAN), a quantitative overview of the different types that have been attested in the corpus can be presented, as shown in Table 4 below. The table presents the number of occurrences as well as an estimated percentage of the humor types in the corpus. The estimated frequency depends on the overlap between these humor types, since they usually combine in humorous instances:

Tab. 4: Overview of humor types

Humor type	Number of occurrences	Estimated percentage in corpus
Sarcasm	315	36.6%
Misunderstanding	97	11.2%
Hyper-understanding	95	11.0%
Exaggeration	90	10.4%
Joint fantasy	65	7.4%
Sexual humor	57	6.6%
Register humor	57	6.2%
Teasing	53	6.1%
Situational humor	44	5.1%
Insider humor	43	4.6%
Stereotype humor	24	2.7%
Inter-textual humor	20	2.0%
Self-glorification	17	1.9%
Parody	11	1.2%
Gender humor	10	1.1%
Anecdote	10	1.1%
Irony	7	0.8%
Understatement	6	0.6%
Self-mockery	6	0.6%
Meta-humor	6	0.6%
Puns	4	0.4%

Figure 24 below presents the same overview, in the form of a graph. Given that sarcasm accounts for 36.6% of the data, we then zoom in on this category in order to offer a fine-grained analysis of this type of humor. It is relevant nonetheless to show how in such a large amount of data, the humor types discussed above are accounted for and how they can be analyzed in interactional humor. The results are given in number of occurrences in the corpus, both as used individually and in combination with other humor types.

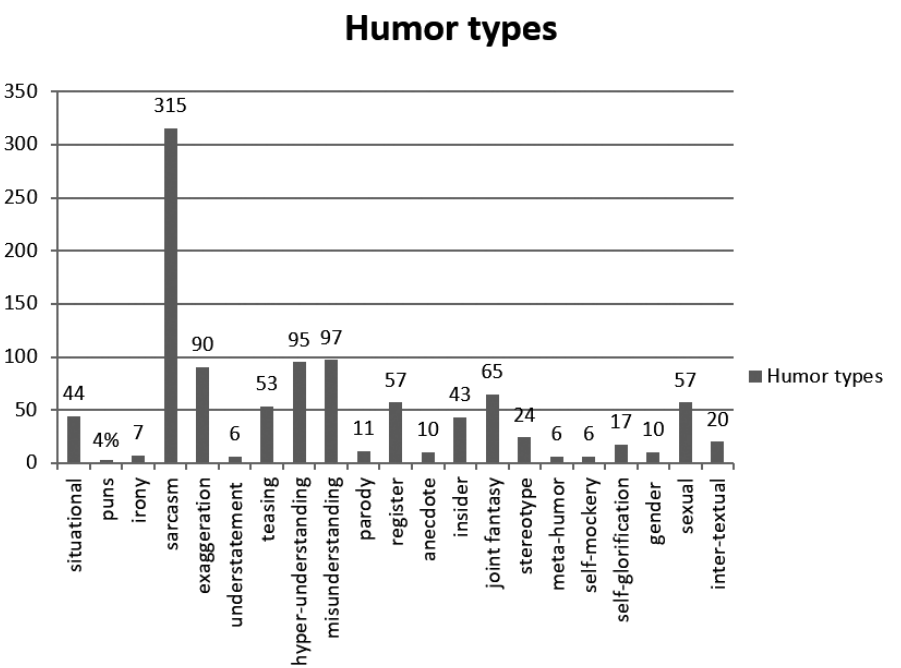


Fig. 24: Distribution of humor types in the case study

This distribution shows a marked preference for sarcasm (36.6%), which sometimes also combines with other humor types (joint fantasy, hyper-understanding, exaggeration, self-glorification, etc.). A possible explanation for such a high number of sarcastic instances may be that *House M.D.* is a sarcastic television series, where the main character mocks everyone around him, while *The Big Bang Theory* presents a perspective where the hearers can mock the world in which this group of friends lives. It presents a sarcastic view of these nerdy scholars. This is also the reason why misunderstanding follows sarcasm (11.2%), especially since sarcasm or other humorous meanings are not understood by the characters in

The Big Bang Theory, which presents a clash of viewpoints to the hearers who have accessed the intended interpretation in the first place. Hyper-understanding is also frequently used (11.0%) where speakers take advantage of the interlocutor's choice of words in order to reverse the situation. Both series present a high number of exaggerations (10.4%) because the speakers intentionally distort the situations presented in the series for a humorous effect. Joint fantasy is used quite frequently as well (7.4%) since the speakers create humorous hypotheticals from the situations in which they find themselves. Sexual humor is achieved by the implicit or explicit reference to sexual activity and is used in both series in a number of varied instances (6.6%). Register humor (6.2%) is mostly (but not exclusively) used in *The Big Bang Theory*, particularly because of the language the speakers use (referring to science all the time or the use of euphemisms). Teasing, a playful attitude toward the interlocutor is quite frequently used as well (6.1%). Both series create humor from situations that are incongruous; situational humor is more frequently used in *The Big Bang Theory*, but also in *House M.D.* (a total of 5.1% in the corpus). The occurrence of situational humor in *The Big Bang Theory* is also due to the fact that this humor type is not intentional, and the group of friends does not always perceive the implications of certain social situations.

The rest of the humor types listed in Table 4 and Figure 24 above each represents less than 5.0% of the corpus. Insider humor (4.6%) builds on certain elements from the background imposed by the two series and to which speakers refer. Both these series present instances of stereotype humor (2.7%), since the characters are of different origins and backgrounds (Raj in *The Big Bang Theory* is originally from India; Howard is Jewish; Foreman in *House M.D.* is African-American, and Chase is Australian). Inter-textual humor (2.0%) is based on rich references to different movies, songs, or books. Self-glorification (1.9%) is most frequently used in *The Big Bang Theory*, to show the superiority of the speaker in a certain social context. With parody (1.2%), speakers from both series generally impersonate the interlocutor, thus creating a humorous effect. Gender humor (1.1%) appears more often in *The Big Bang Theory* through the analogy between men and women. Anecdotes (1.1%) are used when speakers tell stories from their past, usually embarrassing ones about themselves.

Certain humor types represent less than 1.0% of the corpus, such as irony (0.8%), understatement (0.6%), self-mockery (0.6%), meta-humor (0.6%), and puns (0.4%). A possible explanation for the infrequent use of irony would be the existence of a target (the "butt" of the joke), which makes the utterances sarcastic instead of ironic. The similarities and differences between irony and sarcasm, illustrated with examples, will be discussed in more length in the next chapter.

3.4.2 Overview of linguistic mechanisms

Table 5 below illustrates the main findings regarding the linguistic mechanisms found in the corpus. Although these constitute broad categorizations, they allow a closer look into the different categories of humor. The estimated percentage depends on the number of occurrences and on the fact that, similar to humor types, these linguistic mechanisms are often used in combination with each other:

Tab. 5: Overview of linguistic mechanisms

Linguistic mechanism	Number of occurrences	Estimated percentage in the corpus
Metonymy	173	20.1%
Explicitation	85	9.8%
Metaphor	78	9.0%
Key element	69	8.0%
Reasoning/Inference	69	8.0%
Shift of focus	61	7.1%
No linguistic mechanism (situational)	57	6.6%
Repetition	57	6.6%
Opposite/Antithesis	50	5.8%
Perspective	41	4.7%
Rhetorical question	36	4.1%
Comparison	21	2.4%
Structural parallelism	19	2.2%
Polysemy	14	1.6%
Hyperbole	9	1.0%
Homonymy	1	0.1%

Metonymy is the most frequently used linguistic mechanism (20.1%) when the speakers use one of the elements in the frame to refer to the entire frame. The complex associations created this way have a humorous effect. A high number of these metonymies are used for a sarcastic effect, as will be discussed in more detail later on. Metaphor, where two distinct frames are being brought together for humorous interpretations, is used in 9.0% of the cases. This means that, in humorous instances, metonymy is more easily used by speakers to overlap the different meanings. Explicitation is also quite frequently used by speakers (9.8%),

and in these instances they state the obvious for a humorous effect. It consists of exemplifying something that they have just said or that the interlocutor said to add layered meanings to the situation. This linguistic mechanism is at the center of several humor types, such as sarcasm and exaggeration, and less frequently, insider humor. The key element (8.0%) and structural parallelism (2.2%) are used in hyper-understanding, where speakers 'recycle' the interlocutor's words to trump them and reverse the intended meanings but also in misunderstanding, where the switch is done unintentionally. Reasoning, often introduced by an *if*-clause, is used with sarcasm and exaggerations (8.0%). It also comes in the form of an inference the speaker draws from the information they get. The shift of focus is also commonly encountered (7.1%) in different humor types, but mostly in sarcasm. Repetitive statements (6.6%) where the speaker either repeats the same word/structure (their own) throughout several scenes or just repeats one/some of the interlocutor's are used mostly for a sarcastic effect or with register humor. The opposite thought/meaning is used in sarcasm and irony (5.8%). The perspective from which the situation is seen is common of sarcasm and misunderstanding (4.7%). In the case of sarcasm, this change of perspectives is done intentionally, whereas in the case of misunderstanding, it is an intentional clash between two different perspectives that generates the humorous effect. Rhetorical questions are also at the center of some humorous instances, mainly those including sarcasm, sometimes even exaggerations (4.1%). Comparisons (2.4%) are used mainly in exaggerations and sarcastic utterances where speakers build a humorous effect from the analogy between different elements or situations.

The rest of the linguistic mechanisms mentioned in Table 5 above are not so frequently used: polysemy (1.6%), hyperboles (1.0%), and homonymy (0.1%). Moreover, in some cases, no linguistic mechanism is at the center of the humor type; the humorous instance is generated by an incongruity in the situation presented (6.6%). Consequently, the hearers will find the situation per se humorous, even though no verbal element is at play to generate this effect.

However broad these categories might be, it is interesting to see that the same mechanisms are used in both television series through different writing techniques to achieve the humorous effect. As mentioned above, there are also certain patterns in the creation of the humor types listed above, since they usually build on the same mechanisms.

3.4.3 Overview of gestures

All kinds of gestures co-occurring with humorous instances have also been annotated, ranging from facial expressions (such as raised eyebrows, frowning, smiling, and winking) to hand gestures (pointing, hand movements, etc.) and even head tilts or shrugs. As shown later on, these gestures play a role in the understanding of a humorous utterance. In total, there are 1,507 gestural annotations in the corpus, comprising all the different gestures used by speakers in their humorous utterances. The range of gestures and the main results are given in Table 6 below, with the percentage for these gestures in the total data set. The estimated frequency is given for a comparison with the total data, but some annotations comprise multiple gestures, which makes the actual gestural corpus bigger than 1,507 occurrences (which is the smallest possible estimate of the total gestural corpus).

Tab. 6: Gestures in the corpus of humorous interactions

Gesture	Number of occurrences	Estimated percentage in the corpus
Raised eyebrows	498	33.0%
Frowning	212	14.0%
Head tilts	259	17.1%
Head nods	294	19.5%
Shrug	41	2.7%
Pointing	57	3.7%
Straight face	20	1.3%
Gaze	13	0.8%
Smile	22	1.4%
Wink	13	0.8%

Table 6 shows a preference in the corpus of humorous for facial expressions, a phenomenon also observed by Rockwell (2001) and Attardo *et al.* (2003). They generally noted the use of eye rolling or rapid blinking to inform the listener(s) of the ironic/sarcastic intent of their utterance. This is also the case in our data, where such facial expressions were used to alert the hearers of the non-seriousness of the speakers' discourse. The use of both raised eyebrows (33.0%) and frowning (14.0%) is quite striking. This phenomenon will be elaborated later when we explore all their implications and meanings, and their relation to

humorous exchanges. Another facial expression used in the data was smiling (1.4%), which has been studied by Attardo *et al.* (2013a) in their experiment on multimodality in conversational humor. Their findings show that smiling may be the only clear marker of humor, meaning that it may be the only marker that either precedes (and thus predicts) or follows humorous instances, while the other facial expressions and gestures encountered with humor play a role in the understanding of the humorous message, but do not predict the use of humor by speakers. Other facial expressions co-occurring with humor in the corpus would be a straight face (1.3%), gazing (0.8%), and winking (0.8%).

A great number of head gestures are also encountered in the data, mainly head tilts (17.1%) and head nods (19.5%). Sometimes these gestures overlap and it is usual for facial expressions to be used with these head movements as well. These head movements will also be discussed in more detail further on.

This kind of gestures constitutes an important counterpart to the other facial expressions in the data, because they occur as frequently as raised eyebrows and frowning. Both head tilts and head nods occur with certain chunks or words in the speakers' discourse and thus they too play a role in the understanding of the humorous message, as shown in the analysis.

3.4.4 Overview of prosodic elements

Table 7 below shows the main results regarding prosodic elements in the corpus. The table presents the number of occurrences as well as the estimated percentage in the corpus concerning the prosodic elements that have been gathered from the data set. Similar to above, these constitute only relative frequencies, since certain annotations contain more than one prosodic element:

Tab. 7: Prosodic elements (pauses and stress shift) in the corpus

Prosodic element	Number of occurrences	Estimated percentage in the corpus
Pauses	95	15.6%
Stress (shifts)	176	28.9%

Both pauses and stress are frequently used in the data in order to contribute to the humorous effect. Stress singles out a particular word in an utterance that is more important than others (in the case of humor, the shift of nucleus switches

the hearers' attention to some other phenomenon in the humorous instance), and pauses mark the difference between two different readings given to the same scenario. On the one hand, stress plays an essential role in many sarcastic utterances, where the shift of nucleus makes something relevant for the hearers. It is also found in exaggerations, register humor, and some misunderstandings. On the other hand, pauses play a certain role in certain sarcastic utterances where the hearer's expectation is exploited for a humorous result. They are also encountered in exaggerations, sexual humor, hyper-understanding, and joint fantasy. The reason would be that the speakers play on different interpretations given to the scenario they build in discourse. The pauses are necessary because they mark the switch in interpretations and allow the hearers to access a first interpretation, and then to add another one.

Since the elements cited in Table 7 refer to a minimalistic view on prosodic elements and their role in the creation and understanding of humorous utterances, we will not try to develop a new theory based on these results. These elements have generally been discussed elsewhere where their role in humor is explained in much more depth (see Pickering *et al.*, 2009; Attardo & Pickering, 2011; Attardo *et al.*, 2013b). This study does not include any voice frequency analysis which would be essential for a more fine-grained analysis of these data, with clear results about special tones of voice or a different intonation used with humor.

3.5 Conclusion

In this chapter, the data and the methodology used in the study for the analysis of humorous instances in the context of interactional humor were presented.

Following Norris (2004, 2011), we explained why the analysis of the visual elements is crucial for a better understanding of humorous interactions. For this analysis, it is important to include multimodal markers of humor, since they are repetitively used in humorous instances. The methodology and data annotation thus focuses on the role multimodality plays in the creation and understanding of humor.

Drawing from examples from the two series we presented the humor types that can be used for the analysis of the data but also illustrated how different types may be at work in one and the same interaction. A more detailed analysis of linguistic mechanisms was also included in the analysis, showing how these various humor types make use of the same processes in (humorous) meaning construction. We described in more detail how an annotation tool such as ELAN can successfully be used for humor analysis as well, since it provides easy access

to the data. A larger corpus of humorous interactions plays a fundamental role in the analysis of humor, allowing a more holistic view of the data.

Finally, we presented the quantitative results from the study, including humor types, linguistic mechanisms, gesture analysis, and prosodic elements annotated and analyzed in the corpus. These results show an empirical-based approach to humor, illustrating the different types and mechanisms that create humorous meanings, as well as multimodal markers for humor. They provide evidence for how humorous meanings are built in discourse, but also on the different gestures and prosodic factors that allow the speakers to emphasize certain elements in the discourse and thus make the humorous interpretation clearer to the audience.

In the following, we develop sarcasm and the way it is understood and built in interaction. This will be done also using the multimodal elements explained above, such as gestures and prosodic markers which will be analyzed as 'gestural triggers', allowing interlocutors/hearers to switch to the humorous message.

4 Sarcasm: Meaning and incongruity

Sarcasm is the humorous type that is encountered most in the study (36.6% of the total data). This analysis, following Hidalgo Downing and Iglesias Recuero (2009) who consider sarcasm to be a type of humor (see also the description above), aims to differentiate between various linguistic mechanisms used to achieve a sarcastic effect.

First, we investigate the concept of sarcasm (section 4.1) for a better understanding of the phenomenon. Secondly, we present a typology of sarcasm (section 4.2), based on the corpus of examples. Thirdly, we present sarcasm interacting with different humor types, as encountered in the study. In this case, sarcasm can be interpreted as either the background or foreground tone for another humor type (thus interacting with other humor types in the corpus). Finally, the general discussion addresses important issues for the analysis of humor in general, and sarcasm in particular: the role of common ground (Clark, 1996), meaning construction, and incongruity analyzed from different linguistic perspectives (see also Tabacaru, 2017).

4.1 Basic assumptions

Despite the numerous studies on the topic so far, "humor and irony research in linguistics is still young", as Ruiz Gurillo and Alvarado Ortega (2013, p. 6) correctly observe. This section addresses the basic definitions and features of the concept of sarcasm, essential for a better understanding of how sarcasm comes about. A few examples of irony and sarcasm from the data are presented to clarify the difference between these two categories.

4.1.1 Defining sarcasm. Differences between irony and sarcasm

Even though many researchers have discussed the concepts of irony and sarcasm, definitions of these terms still seem unsatisfactory. Averbeck and Hample (2008) and later Averbeck (2013) remark that these definitions are too loose and that is why boundaries between the two terms are difficult to establish. When comparing the two notions, researchers have mainly focused on the concept of irony. What is more, these researchers do not seem to agree on the role these two notions play. Gibbs (2000) correctly points out that irony studies are actually studies on sarcasm, given the ample confusion around these two concepts. On a

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similar note, Nunberg (2001) believes that sarcasm has been widened to include the concept of irony as well. On the contrary, Tobin and Israel (2012, p. 26) see sarcasm as a "paradigm case" of irony while Kihara (2005) treats sarcasm as a "subcategory" of irony. These discussions underline the fact that, in the literature, these two terms have been used interchangeably and that is why it is important to point out the differences between them and to understand how their meanings are built and understood in discourse.

To begin with, it is essential to note that the focus here falls on verbal irony, not situational irony (Muecke, 1970; see also Ruiz de Mendoza & Galera, 2014; Athanasiadou and Colston, 2017). The most common definition of irony is 'saying the opposite of what you mean', as discussed by Grice (1975, 1989). Grice discusses irony in terms of an implicature where the maxim of quality is intentionally flouted. This view sees irony as happening on two levels: the hearer will first access the literal interpretation which subsequently prompts a contextually appropriate interpretation. Later (Attardo, 2000), irony has also been discussed in terms of a deliberate flouting of any of the maxims instead of just the maxim of quality, as stated by Grice. One of the issues with this definition of irony is that it represents the use of words that mean something else, and mostly, the exact opposite, of the literal meaning of these words. However, as observed by Lagerwerf (2007), it is hard to tell what "opposite" actually means (see also Colston & Athanasiadou 2017, p. 2). When do we consider a statement the opposite of something?

Furthermore, it has been suggested, contrary to the definition pointed out by Sperber and Wilson, that irony represents a difference between the dictum—what is actually said—and the implicatum—what is actually meant (Giora, 1995; Kotthoff, 2003, 2009). Similarly, irony is said to have an echoic use (Sperber & Wilson, 1981; Barbe, 1995; Wilson & Sperber, 2004; Ruiz de Mendoza, 2017). This means that the speaker echoes a thought (or an opinion, hope, expectation, etc.) and thus expresses the opposite of that thought (or opinion, hope, expectation, etc.). Averbeck and Hample (2008, p. 397) suggest a more complete definition of irony that includes this perspective: "Verbal irony is a message that is intentionally and transparently inconsistent with attitudes or beliefs held between two or more people". For instance, consider a scenario where it is raining and a speaker exclaims "What a fine day!" This constitutes irony because of the obvious incongruity between the speaker's words and the actual event (on the common view that rainy weather does not constitute fine weather). The speaker's words would thus be intentionally inconsistent with the actual context.

Drawing from this, Attardo (2000) presents the relevant inappropriateness hypothesis in a pragmatic framework. The Cooperative Principle is violated in a

certain context, resulting in the rejection of the literal interpretation of an utterance in favor of an ironic meaning (see also Brône 2012 for an overview).

Moreover, as already illustrated in Chapter 2 above, humor, and, more specifically, irony has been discussed in terms of the graded salience hypothesis. In understanding, salient meanings have priority. Salience is different from literal meanings since they depend on a number of factors, such as conventionality, familiarity, and frequency. Irony is seen as involving two meanings, a literal one and an implicit ironic meaning. Irony depends on non-explicit negation:

> [I]rony is a form of negation that does not use an explicit negation marker. Often an affirmative (*What a lovely day for a picnic* said on a stormy day) rather than a negative (*What a lousy day for a picnic* said on a sunny day) expression is used to implicate that a specific state of affairs is different or far from the state of affairs that is taken for granted, expected or more desirable and that is made explicit by the expression. Such a view assumes that irony comprehension involves activating the salient, often literal meaning automatically.
>
> (Giora, 2003, p. 72)

Clearly, if sarcasm is considered a "subcategory" of irony, as does Kihara (2005), it would also correspond to the definitions above. According to Hanks (2013, p. 135), both concepts present some incongruity or the opposite of a truth known by the speaker. However, it appears that sarcasm has a more negative connotation compared to irony, because it is often intended as hurtful (Hanks, 2013) or includes a criticism (Mesing *et al.*, 2012). According to Barbe (1995, p. 28), sarcasm is more personal than irony, and its purpose is obvious for all the participants. Furthermore, Averbeck (2013, p. 49) considers that the main difference between irony and sarcasm is that the former does not identify the addressee (i.e., the target)[38] whereas the latter is more critical and identifies the addressee. Lee and Katz (1998) emphasize that the main distinction between the two labels of irony and sarcasm is aggressiveness. They say that, when using sarcasm, the speakers' tone is aggressive (see also Bowes & Katz, 2011). In other words, sarcasm is more overtly critical than irony, with "clearer markers/cues and a clear target" (Attardo, 2000, p. 795). Fowler (1965, p. 535) notes that "sarcasm does not

38 However, the existence of a target raises some important similarities between another humorous type and sarcasm: that of teasing. In Feyaerts *et al.*'s (2015) study of teasing, the target represents one of the five parameters that were used to analyze the humorous utterances. Kotthoff (2007) presents a typology of teasing, which includes a provocative behavior on the part of the speaker. Dynel (2008, p. 242) argues that criticism and aggressiveness in teasing is gradable and can also be non-existent, depending on the form teasing takes. One of the forms quoted by Dynel (2008) is sarcasm. Sarcastic teasing, in Dynel's view, can seem aggressive to the hearer.

necessarily involve irony, and irony has often no touch of sarcasm…The essence of sarcasm is the intention of giving pain by (ironical or other) bitter words."

As mentioned earlier in Chapter 2, irony and sarcasm have been seen as a pretense (Clark & Gerrig, 1995; Coulson, 2005b; Kihara, 2005, Wilson 2006; Barnden 2017) where there is an incongruity between a certain expectation in a given context and the actual reaction of a speaker; as Coulson (2005b, p. 132) puts it, there is "a discrepancy between the contextual scenario in which an utterance occurs and the verbiage of the sarcastic utterance." Similar to this view is Kreuz and Glucksberg's (1989) reminder theory as well as Kumon-Nakamura *et al.*'s (1995) allusional pretense view of irony, according to which irony alludes to some expectation that has been violated in discourse. The mental space approach in Cognitive Linguistics, as also highlighted by Brône (2012, p. 493), has the merit of linking "the phenomenon to a series of other discourse phenomena that have been shown to revolve around complex constellations of connected mental spaces." Kihara's (2005) approach differs from Coulson's because it does not perceive irony and sarcasm as integrating two mental spaces. If the speaker is ironic/sarcastic, they turn to a counterfactual expectation space, an imaginary scenario where the utterances would be expected.

When using irony and/or sarcasm, speakers seem to behave in much the same way. First of all, because of their personal feature, common ground plays an essential role on whether or not sarcasm and irony are used (Kreuz *et al.*, 1999; Caucci & Kreuz, 2012). The speakers have to share some common ground in order for sarcasm or irony to be used and, more importantly, understood. Secondly, research suggests that speakers use certain cues to signal their use of irony and/or sarcasm. These cues could be prosodic (Clark & Gerrig, 1984; Rockwell, 2000; Boxer, 2002; Hancock, 2004; Kennedy, 2008; Cheang & Pell, 2009; Hanks, 2013) or even non-verbal, such as gestures (Rockwell, 2001; Attardo *et al.*, 2003, 2013a; Caucci & Kreuz, 2012).

Regarding prosody, Boxer (2002) and later Cheang and Pell (2009) note that speakers raise the fundamental frequency of their voice when using sarcasm. Also Rockwell's (2000, p. 493) experiment nicely shows that "sarcasm appears to exhibit a clear pattern of vocal cues." Regarding non-verbal markers, gestures (which can be of very different types) can precede, follow, or be used concomitantly with sarcasm or irony. For instance, Rockwell (2001) related certain facial expressions with the use of sarcasm. This issue will be taken up in more detail later on.

Even though Attardo (2000, p. 795) notes that "[t]here is no consensus on whether sarcasm and irony are essentially the same thing, with superficial differences, or if they differ significantly", Dress *et al.*'s (2008) experiment

demonstrates that people can instinctively tell the difference between these two notions, concluding that "participants can still differentiate the two terms in a meaningful way" (p. 80). The experiments by Dress *et al.* (2008) confirm the general definition that both irony and sarcasm express the opposite, but sarcasm includes a negative attitude (p. 79). This study is mainly focused on sarcasm[39], because this seems to be the most frequently used humor type in the corpus.

To sum up, sarcasm is instantiated by statements that are inconsistent or incompatible with the actual situation presented by the discourse, and which target someone or something specifically, be they present or not. Instead of a definition based on the 'opposite of', we will adopt the idea of incongruity existent in both irony and sarcasm. The speaker shows a mocking or hostile attitude toward an idea, a person, an institution, etc.

However, this perspective still implies a broad understanding of the concept of sarcasm. It is clear that some instances will be more prototypical and more obvious than others, while others will include less clear targets and less incongruous ideas. We adopt a layered mental space configuration, such as the one proposed by Brône (2008), in the analysis of sarcasm since it includes both mental spaces theory as well as the importance of common ground in the understanding of such utterances.

In what follows, two prototypical examples of sarcasm and irony taken from the corpus are presented, for a better understanding of the two concepts.

4.1.2 Examples from the case study: irony and sarcasm

Consider the following examples drawn from the corpus, which will clarify the distinction between the labels of irony and sarcasm. In example (67), from *House M.D.*, Finn, a magician, prepares a new escape act which involves a glass tank of water. He uses irony when he presents this classic escape act to the audience:

(67) Finn: Chinese water torture cell was invented in 1911 by Harry Houdini. [Pulls down a black cloth revealing a glass tank full of water, just big enough for one person.] Nothing like new material.

39 There are also a number of similarities between sarcasm and teasing, for instance. It appears that both these concepts imply a target and build on the common ground between speakers and hearers. See Dynel (2008), Feyaerts *et al.* (2015) for more on teasing.

In view of the definitions given above and especially the pragmatic view in terms of 'opposition', (67) is a clear example of irony, since the speaker says the opposite of what he really thinks. *Nothing like new material* is incompatible with the situation presented by Finn and this contrast is made obvious by the introductory sentence which reminds the invention of this tank of water in 1911. In this example, by presenting the facts, the speaker clearly makes his sentence ironic, since it underlines two incompatible ideas: the tank of water is everything but *new material*. Clearly, the common ground between speaker and hearers plays a fundamental role in understanding irony. In example (67), even a hearer who is not familiar with Houdini's water tank is being informed by the speaker of its invention in 1911. This creates an easy access to the ironic statement *new material*. In other words, given the common ground (Clark, 1996) between the magician and the audience (which is built by his introductory words on the tank of water), the ironic interpretation is easily accessed both by the audience in the series and the audience at home. Consequently, this utterance only constitutes the opposite of something the hearers know to be true, because if the tank of water was first introduced in 1911, it cannot represent *new material*. What is more, this utterance does not include an overt mockery toward some target and is not aggressive.

Consider now example (68) below, also drawn from the *House M.D.* corpus as well, which constitutes sarcasm. In this context, Dr. House is trying to treat an underage patient, but his mother refuses the treatment proposed. Dr. House postulates that she suffers from mental problems, to which Cuddy (his boss) retorts:

(68) Cuddy: Her only sign of mental illness is that she disagrees with you. Some would consider that a sign of sanity.

Compared to the example (67) presented above, this utterance is more critical and negative, even insulting. It does not *just* represent an incongruity between what is said and what is expected, or two opposite thoughts overlapping, as was the case in example (68). Given the common ground shared between speakers, and between speakers and the audience watching this television-show, it is a clear mockery and criticism towards House, and also states Cuddy's refusal to listen to his advice.

In example (68), we cannot say that Cuddy really believes that not agreeing with House is a sign of mental illness or, conversely, of sanity. This statement still represents some kind of inconsistent attitude or belief. But, compared to the example of the water tank above (which represented only the contrast between an expected reaction and Finn's violation of this expectation), this example has a clear target (i.e., Dr. House) and a criticism toward this target. As underlined by

Haiman (1998), Lee and Katz (1998), and later by Bowes and Katz (2011), sarcasm, but not irony, includes an aggressor and a victim. The example above can be interpreted from this perspective, where Cuddy's insult is highly aggressive and targeting the other speaker.

As such, the main distinction between irony and sarcasm is that the latter implies the existence of some kind of target toward which criticism is addressed. Even if the target is not always present, the speakers' words show the critical attitude they adopt in order to mock these targets. The case study shows that in the two television series, sarcastic utterances were encountered more than ironic utterances. Nonetheless, irony is not totally removed from the data set, but occurs in more neutral contexts that are neither overtly critical nor aggressive toward something or someone, as shown in example (67) above (*nothing like new material*). They simply express an opposite, inconsistent idea with the situations presented in the series or introduced by the speakers.

In sum, in our study, ironic utterances are considered to be those that suggest an incongruous interpretation from what is expected or seen by the interlocutors or by the audience, but without any overt criticism directed at someone or something. Sarcastic utterances, in contrast, include some kind of criticism or negative emotion versus a certain target (be it present or absent). As shown in example (67) above, the irony in *nothing like new material* is not overtly critical toward anything or anyone. By presenting the tank of water and then overtly commenting that it is new, the speaker only creates an incongruity between what is said and what is shown. On the contrary, the sarcasm in (68) clearly targets House's persona by implying that disagreeing with him is a *sign of mental illness* or *sanity*. Nonetheless, both examples are built on common ground between speakers and hearers, since in both examples the hearers are able to interpret the utterances as pretense spaces (Clark 1996): they do not take these utterances at face value since speakers and hearers share common knowledge. In example (67) the tank is explicitly introduced by the speaker, whereas in example (68), the audience is familiar with the sarcastic tone of the series and House's difficult and antagonistic character. This dichotomy between irony and sarcasm is relevant for the purpose at hand and especially for a clear-cut analysis of sarcasm, as presented below.

4.1.3 An overview of types of sarcasm

Generally, researchers have focused on defining sarcasm as implying a criticism and opposed thought or belief, but a more detailed analysis is needed in order to fully understand this humor type. Table 8 below shows the processes used to

create sarcasm and their frequency in the given corpus, based on the linguistic mechanisms presented in Chapter 3.

Tab. 8: Linguistic mechanisms in sarcasm

Linguistic type	Number of occurrences	Frequency
Metonymy	74	22.7%
Explicitation	49	15.0%
Antithesis	46	14.1%
Metaphor	31	9.5%
Shift of focus	30	9.2%
Reasoning	30	9.2%
Rhetorical questions	24	7.3%
Repetition	22	6.7%
Perspective	13	4.0%
Analogy	6	1.8%

Out of the 315 sarcastic instances gathered from the data (36.6% of the total corpus), metonymy appears to be the most frequent of these processes, because it is used in 74 of the sarcastic utterances (22.7%). It also appears to be the most complex one, because it requires the hearer to construct some mental path (based on inferencing) to arrive at the humorous interpretation. We explain in the following sections how inferences work through means of metonymy in order to achieve a sarcastic/humorous effect, by comparing these utterances to the classical view of metonymy. Explicitation, which shows that sometimes sarcasm is achieved by stating the obvious and thus explicitly mocking a certain thought/idea, accounts for 49 instances of sarcasm (15.0% of the total corpus). The classical pragmatic view which sees sarcasm as representing the 'opposite' of someone's thought (with the presence of a target, which differentiates it from classical irony) was annotated as 'antithesis'[40] and was present in 46 instances (14.1%). The process of explicitation is also more complex than just stating the 'opposite' in that the statement that is being made clearly represents an emphasis through which the

40 All these examples consisted of an incongruous thought aimed at someone/something. The concept of 'antithesis' will be the one that fits this definition. The other mechanisms shown here include some other forms through which the incongruity+target was achieved; this will be explained for each process.

humorous effect is achieved. Sarcasm involving metaphoric mapping is used in 31 instances (9.5%), followed by a shift of focus and reasoning which each account for 30 instances (9.2%). In 6.7% of the sarcastic utterances (22 instances), sarcasm is achieved through repetition. Perspective is used with a frequency of 4.0% (13 instances) and analogies account for 1.8% of sarcasm (only 6 instances).

Our perspective zooms in on the different techniques used to create a sarcastic effect. To our knowledge, this detailed analysis (presented in section 4.2) is the first classification of sarcasm, using linguistic parameters such as the ones described in Chapter 3. We focus on the various linguistic elements by explaining the complex implications generated by them. For the sake of relevance and in order to be able to compare different instances, we only focus on examples for which there are at least 15 instances in the corpus (i.e., at least 2% of the corpus).

Figure 25 below shows these main linguistic types as occurring with sarcasm and with total instances of humor in the overall corpus. The order in which they appear is the order in which they will be discussed in the next section.

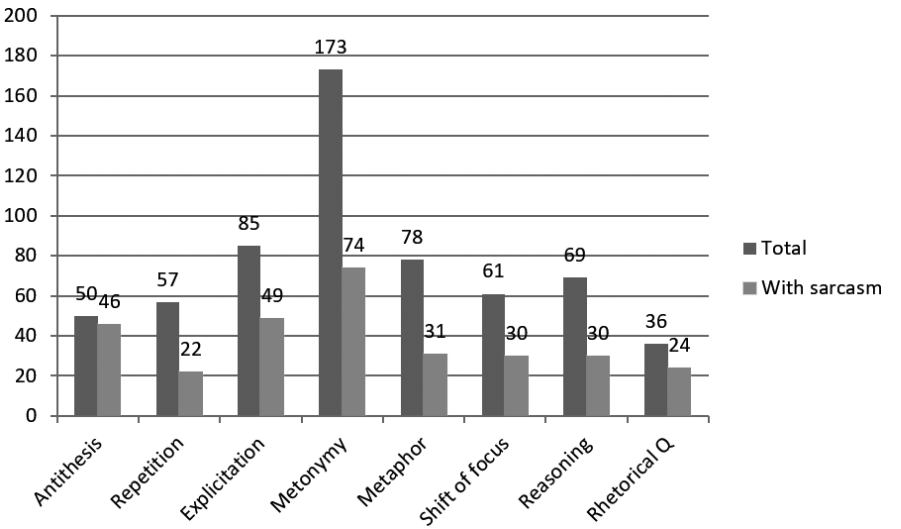

Fig. 25: Linguistic types in sarcasm and in total

As we show in the following sections, sarcasm may be a more complex humor type than is generally assumed to be the case: several linguistic processes are at work when sarcasm is created, showing the manifold implications at play in the process of meaning construction and the different associations the human mind makes in the process of understanding.

4.2 Sarcasm: means and meanings

Given that sarcasm is the most encountered humor type in the data (36.6%), we propose a typology of the different linguistic mechanisms that were used to create sarcastic meanings. Due to the large amount of data on sarcasm, this typology is relevant for a better understanding of the phenomenon, as well as a clear dissociation from irony. This classification shows creativity in sarcasm, because these mechanisms do not only suggest an incongruous interpretation, but build on the diverse linguistic phenomena discussed in previous chapters. On the one hand, we argue that some of these operations are manipulated in the use of sarcasm (such as prototypicality or inferences, for example) for a humorous effect on the hearers. On the other hand, we underline the importance of common ground for the understanding of these humorous instances. We apply Brône's (2008) unified account of layered meanings and mental spaces to sarcasm and we analyze these examples drawing on Clark's (1996) layering model as well as Fauconnier's (1984, 1994) mental spaces theory. This account helps us distinguish between a serious discourse space and a non-serious, pretense space in which sarcasm is created and understood. For this purpose, we have selected a number of examples that best describe the sarcastic cases in the study. Evidently, as explained above, some examples are more prototypical than others, while others are less clear. We will discuss this issue later on.

Even though metonymy is the process that was used most to create sarcastic effects, we start with 'antithesis', since this has commonly been viewed as defining irony and sarcasm, as shown also in section 4.1. above. The more complex processes, such as metonymy and metaphor, will be discussed after that.

4.2.1 Antithesis

As discussed in section 4.1.1 above, sarcasm implies an opposite thought or interpretation. This is a reminiscent of Raskin's (1985) idea of script-opposition, where humor arises from the incompatibility between two different interpretations. In more recent work in Cognitive Linguistics, it has been viewed as a contrast between an expected reaction and the actual reaction (Coulson, 2005b; Kihara, 2005). The exchange in (69) presents such an example where sarcasm is underlined by the adjective *dangerous* which actually means the exact opposite. In this scene, we see Dr. House in the consultation room with Ricky, the patient, and his father, who does not speak at all during the consultation. Ricky explains the situation to Dr. House:

(69) Ricky: He can't talk.
House: Excuse me?
Ricky: He had knee surgery.
House: Right…
Ricky: About a year ago, and then he couldn't talk.
House: Right, yeah, well, that happens. You know, it's so dangerous operating so close to the vocal cords.

Sarcasm becomes clear in House's final remark that it is possible to lose one's voice after knee surgery, since it is *very dangerous operating so close to the vocal cords*. As discussed in section 4.1 above, following the pragmatic perspective, irony and sarcasm both express a contrast between what one is thinking and what they are saying, but sarcasm includes an overt mockery toward a target. In this case, the target would be not only Ricky, but anyone who believes that someone can lose their voice after knee surgery. The adjective *dangerous* is evidently sarcastic, and expresses the opposite thought, particularly with what comes afterward (*operating so close to the vocal cords*). Raskin's (1985) theory of script-opposition would nicely explain the humor arising in the incompatibility between the adjective *dangerous* and the words *so close to the vocal chords*.

If one analyzes this example drawing on Fauconnier's mental spaces model, the two meanings can be represented in two distinct mental spaces that refer to one another as diagrammed in Figure 26. Similar to the layering model, these two meanings refer to the same form *dangerous*, which means *not dangerous* in the reality space. The pretense space is built by House's sarcastic word(s). The adjective *dangerous* is then to be interpreted in a pretense space:

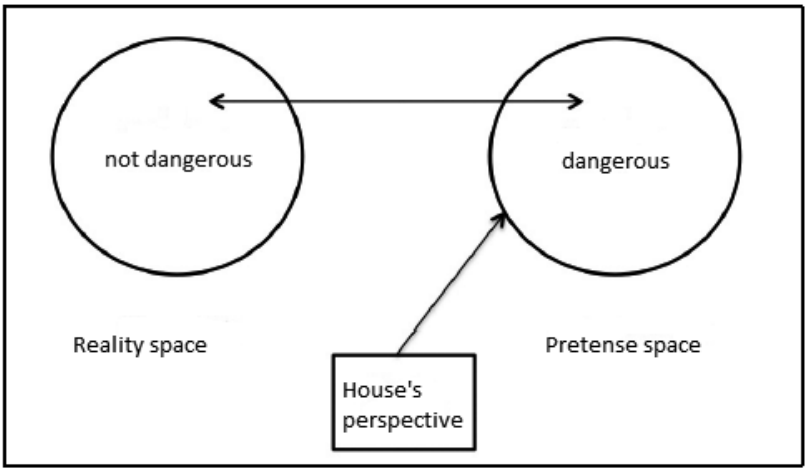

Fig. 26: Mental spaces for example (69)

Drawing on the layering model explained by Clark (1996), this example can then easily be understood in terms of layers. House's final remark happens and should be interpreted in a Layer 2—a pretense, non-serious space—where it is possible for someone to lose their voice after knee surgery. The linking element is the adjective *dangerous*, which cannot be understood at face value for the humorous interpretation. Rather, drawing on the common ground that the speaker shares with the audience (i.e., everyone knows that knees are not close to the vocal chords), this statement is to be interpreted in a pretense, non-serious space, as outlined above. The audience is then able to access the sarcastic interpretation because of the clash between the two meanings (*dangerous* and *so close to the vocal cords*). Following a basic line of reasoning, House's message is to be interpreted as sarcastic, with Ricky (and other people thinking the same) as the target of his mockery.

Example (70), from *The Big Bang Theory*, is similar to the previous example, because it is a case where the speaker expresses the opposite of what they mean. In this scene, Sheldon complains to his flat mate Leonard that Penny, their neighbor, is constantly calling him in order to get advice for a video game she is playing. He wishes Penny would leave him alone, and seeks Leonard's help:

(70) Leonard: Well, what am I supposed to do?
Sheldon: I don't know, but if you don't figure something out, I warn you, I shall be very difficult to live with.

Leonard: You mean, up until now, we have been experiencing the happy, fun time Sheldon?

The series is based on the life of nerdy scholars, and Sheldon's character is presented as the most asocial of them all. Sarcasm is evident when Leonard uses the adjectives *happy, fun time* to refer to Sheldon, whose character in the series is the exact opposite, as is blatantly obvious to the audience. Unlike example (69) above, this does not only represent the opposite thought, but is also antonymic to what the previous speaker (Sheldon) said. It is thus implied that Sheldon is very difficult to live with, but this implication is the conclusion hearers draw after Leonard's last comment about the *happy, fun time Sheldon*. Moreover, common ground between speakers and the audience contributes to fully understanding the implications of Leonard's sarcastic comment. Just like the previous example discussed above, the pretense space (Layer 2) includes a Sheldon that is *happy* and *fun time*. The adjectives are thus interpreted in the non-serious space, referring to the serious discourse space (Layer 1), which consists of the real image the speaker and the hearers have of Sheldon's character, as well as what being *happy* and *fun time* really means (in a serious way).

In example (71) below, taken from *House M.D.*, this antithesis does not focus on only certain words, but on an entire utterance. This scene presents an exchange between Dr. House and his friend Dr. Wilson discussing Stacy's entrance in the cafeteria. Stacy is Dr. House's ex-fiancée and now happily married to someone else:

(71) House: Oh!
Wilson: What?
House: Trouble in paradise, two o'clock.
Wilson: Your two o'clock or my two o'clock?
House: There.
[Stacy and her husband smiling and getting lunch]
Wilson: She seems perfectly happy. Obviously, they huddled in the hall and worked up this circus act on the off-chance you'd be in here.

Sarcasm here is built on the incongruity between what Wilson says (*obviously, they huddled in the hall and worked up this circus act on the off-chance you'd be in here*) and what the hearers know and see to be true (the scene presents Stacy smiling next to her husband, in no way a sign of unhappiness). This is actually an implicature following House's reply *trouble in paradise*, which gives the idea that the couple might not be happy together. This antithesis between what is said

and what is known to be true is also introduced by the adverb *obviously* which further reinforces an opposite scenario. The adverb marks the mockery towards House who would assume the couple is facing some issues. The scenario (i.e., *huddling in the hall and working up their circus act*) that follows this adverb is given in the past simple, as an event that really took place before the couple's arrival in the cafeteria. Note also the use of the verb *huddle*, which adds to the idea that they planned this as a team, and also the expression *circus act*, which emphasizes the dramatic part of this scene. The whole scene of pretending to be happy is displayed as involving a lot of work from the couple in case House would see them together. These exaggerated elements add to sarcasm here, because they point out how ridiculous House's idea is. By showing this in an exaggerated picture, the incongruity between House's assumption that the couple is not happy and reality is made prominent enough to be perceived as sarcastic.

Consequently, these examples are evidence that sarcasm is achieved by saying the opposite of what the speakers know is true. There is a clash between an expected reaction and the actual reaction of the speakers. Moreover, these utterances all center on targeting someone specifically. The sarcastic remarks are obvious enough for an audience to interpret them in a pretense space, which builds on common ground between the audience and the speakers. The common ground is essential for speakers to access different mental spaces through sarcasm. In example (69), Dr. House helps the audience by underlining the so-called proximity between knees and vocal chords; in example (71), the audience also has access to the scene and sees the couple happy before hearing Wilson's sarcastic remark; and, finally, example (70) builds on what the audience is supposed to know (and does know) about Sheldon from previous episodes (that he is not *happy, fun time*).

In the data set, sarcasm is achieved through antithesis in 14.1% of the cases.

4.2.2 Repetitive statements

In some cases, sarcasm is not achieved by saying the opposite, but by repeating what the interlocutor said, yet even in those cases, the speaker shifts from a serious discourse space to a non-serious, pretense one, as explained by Clark (1996), which marks the incongruity typical of sarcasm. If the utterance is being said in a serious tone, and the speaker expects it to be interpreted at face value, by simply changing the tone and repeating the same utterance, the other speaker is able to give a sarcastic effect to the same words. The contrast happens between the serious and non-serious interpretations of the given utterances.

Consider example (72) below, which comes from *The Big Bang Theory* corpus. Beverley (a trained psychiatrist) here believes that Howard and Rajesh have homosexual feelings toward one another, which they are not willing to admit. When Howard insists that he actually has a girlfriend, Beverley repeats his sentence, clearly showing a mocking attitude toward what she thinks he had invented. The same utterance receives different interpretations depending on the person uttering it:

(72) Beverley: So, Howard, have you and Rajesh finally summoned the courage to express your latent homosexual feelings towards one another?
[...]
Howard: Because we don't have latent homosexual feelings toward one another.
Beverley: I see.
Howard: Look, really, I have a girlfriend now.
Beverley: And where is she this evening?
Howard: She had to go out of town, her grandmother died.
Beverley: I see. (smiles, pauses) Her grandmother died.

Beverley's beliefs are also made clear by her gestural attitude because of her use of raised eyebrows (this issue will be discussed in the next chapter; see Tabacaru & Lemmens, 2014). By repeating the previous speaker's exact words, she places the utterance in a Layer 2 (a pretense space), built on Layer 1, the serious discourse space, as initially intended by Howard (and with the expectation that Beverley would interpret these words at face value). Interestingly, in this case, unlike the previous examples analyzed here, it is the exact same utterance and the same words that are interpreted differently, depending on the speaker uttering the message. When Beverley repeats the exact same words, the message receives a new interpretation which targets Howard in Layer 2. Drawing on the account of humor suggested by Brône (2008), Figure 27 below accounts for the repetitive statement in (72). The incongruity between two different meanings of the same word is switched to the clash implied by the whole utterance in (72). Beverley's utterance is built in a pretense space where to the exact same utterance a non-serious meaning is given.

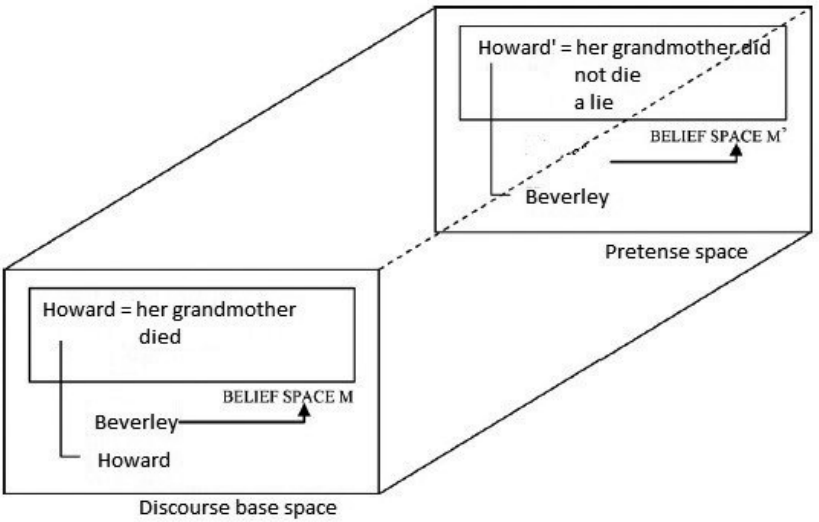

Fig. 27: Layered mental space configuration for example (72)

As such, Beverley's repetition of Howard's utterance is to be interpreted from a different viewpoint (i.e., her grandmother did not die) which generates other implications: there is no grandmother; he does not actually have a girlfriend. The common ground (discourse base space) also includes Beverley's claim that the two friends have *latent homosexual feelings towards one another*, which allows the audience to access her repetitive statement as sarcastic and imply what Howard is saying is a sarcastic utterance, referring to a non-serious interpretation of Howard's statement.

In the following example, the interlocutor's words are repeated, just like in the previous example discussed above, and the serious space is replaced by a non-serious space retrievable to the audience. Unlike example (72), this repetition happens later on in the episode, making the reference to the previous scene when Cuddy uttered the words. In the first scene, Dr. Cuddy (the hospital administrator) summons Dr. House to a meeting with one of his patients. Later on, in the same episode, House repeats the words Cuddy used, in a sarcastic way:

(73) Cuddy: She's coming in at 5:00, don't make me come looking for you [...] And don't be calling in sick or saying that your team needs you for some kind of an emergency consult.
[...]

Cuddy: Mr. and Mrs. Lambert's appointment was over an hour ago.
House: Sorry, I was sick. And my team needed an emergency consult.

Similar to the previous example, it is the repetition of the exact same words that makes the switch possible to a non-serious, pretense space. When first uttered, the words *don't be calling in sick or saying that your team needs you for some kind of an emergency consult* are supposed to be interpreted at face value, in a serious discourse space (Layer 1). This first scene constitutes the common ground between the speakers and the audience. When these words are repeated in a later scene, used in the first person this time (*I was sick. And my team needed an emergency consult*), the audience has to refer to the common ground in order to access the sarcastic interpretation. Typical of sarcasm, this example integrates incongruity between the expected reaction and what House is saying (i.e., he was not sick and the team did not need an emergency consult) and includes a mockery addressed to Cuddy (by using the excuses she thought he could adopt in order to miss the meeting with his patient). These social, intersubjective aspects are an integral part of how sarcasm is achieved.

Consider also example (74) below, taken from *The Big Bang Theory*, where the repetition becomes sarcastic only in Penny's interpretation of it. Howard and Rajesh are trying to impress Missy (Sheldon's attractive sister) by enumerating all the elements from their cultural background that would make her appreciate them. They follow metonymic inferencing where they are PART of the WHOLE (the cultural background that represents them). The examples they come up with are inappropriate and make Missy uncomfortable, which triggers Penny's sarcasm:

(74) Raj: Missy, do you enjoy pajamas?
Missy: I guess.
Raj: We Indians invented them. You're welcome.
Howard: Yeah, well my people invented circumcision. You're welcome.
Penny: Missy, I'm going to have my nails done. Do you want to come?
Missy: God yes. Thanks.
Penny: You're welcome.

This example combines stereotype humor (i.e., the Indian invention of the pajamas, the Jewish circumcision) and even sexual humor (Howard's *You're welcome* after bringing up circumcision) to achieve complex humorous implications. The first *You're welcome* uttered by Raj refers to the comfortableness of pajamas and the fact that they are used worldwide for this reason. When Howard utters *You're welcome* (so, the first repetition of the same structure), the same input gets

a sexual interpretation, with the mentioning of the circumcision. Note that for these two structures Missy does not say *Thank you*, Raj and Howard are both only assuming she should be grateful for elements that their culture provided to the world. Their *You're welcome* is actually an implication of a silent gratitude Missy should be showing to them and to their cultural background. Penny, who overhears the whole conversation suggests an 'escape' from the conversation, for which Missy actually makes her gratitude explicit (*Thanks*). Penny's repetition of the same structure *You're welcome* thus gets a sarcastic interpretation, because she refers back to Raj and Howard's utterances, mocking both of them in this way. Her utterance is pronounced slowly in order for hearers to access the sarcastic reading of the same utterance.

In short, these instances present an incompatibility between two interpretations that two speakers give to the same utterance. When the same utterance is repeated (sometimes right after the first speaker uttered it, as in example [72] with *her grandmother died*, or later on, as in example [73] with House's excuses to miss the meeting), the serious space is switched to a pretense space that the second speaker adopts. This switch also presents the mockery toward the first speaker, because of the non-serious interpretation of their own words.

Sarcasm through repetition is achieved in 6.7% of the cases. It is one of the linguistic mechanisms used with a wide range of humor types, from situational humor to register humor, self-mockery, etc.

4.2.3 Explicitation

Sometimes, sarcasm does not seem to represent incongruous thoughts or beliefs, but states the obvious, and thereby mocks a certain situation or person. In fact, by stating the obvious, the speaker overemphasizes a certain idea which thus becomes a form of mockery, as in example (75) below, where the team of doctors discusses a patient's long illness. Explicitation comes at the end, in House's final remark. The previous lines are also important for the understanding of this instance, since it reinforces the link between evolution and America:

(75) House: I'm thinking genetic defect.
Kutner: (laughs) Niceness is a defect?
House: Three cavemen see a stranger running towards them with a spear. One fights, one flees, one smiles and invites him over for fondue. That last guy didn't last long enough to procreate.
Foreman: And how long has the patient been suffering?

> House: At least as long as his wife has known him, eleven years.
> Foreman: The chances of him having an undiagnosed pathology for that long...
> House: What are you saying? That evolution is wrong? (scoffs) What do you think we are, 21st century America?

This instance expresses the mockery from the part of the speaker, as well as his targeting America as 'victim' of his overt mockery. We call this instance 'explicitation' because the speaker is simply stating the obvious, but still manages to make use of the incongruity generally encountered in sarcasm. In our analysis, we examine both the sarcastic incongruity as well as the sarcastic targeting existent in this message in order to develop all the semantic implications that arise from this utterance.

By following the classical view of sarcasm, this utterance comprises a certain incongruity and therefore it is safe to analyze it as sarcastic. The incongruity arises from the way the speaker phrases his message and the actual message he implies. When he sarcastically accuses the interlocutor of saying that *evolution is wrong*, the example he uses is the actual context in which the speakers find themselves: *21st century America*. This incongruity is created through the clash between the two ideas presented by the speaker. The rhetorical question (and the scoff following it) *That evolution is wrong* marks the incompatible view, and the audience would be expected to interpret this as 'evolution is not wrong'. The way the speaker utters his message, preceded by another rhetorical question (*What are you saying?*) implies the shocking side of such a statement. The example following these two rhetorical questions—*21st century America*—represents an explicitation of why evolution is wrong. Consequently, there is a double incongruity in the two ideas presented by the speaker that can be transcribed as follows:

a) It is shocking to assume that evolution is wrong.
b) 21st century America proves that evolution is wrong.

Both a) and b) present antonymous ideas vis-à-vis the ones originally presented by the speaker. Sarcasm arises then from the manipulation of the discourse space and the hearers' expectations. By presenting the idea that *evolution is wrong* as shocking to an audience, the speaker expects to surprise them with an example of wrong evolution, represented by *21st America*.

In terms of sarcastic targeting, this example addresses *21st America*. This phrase is represented by a metonymy in the traditional sense (see also section 4.2.4 on metonymic inferencing), where the WHOLE stands for the PARTS. As a

whole, America stands for its people, its inhabitants. The speaker thus mocks 21st century Americans by using them as evidence that *evolution is wrong*. This phrase also highlights the STUPIDITY feature that comes to mind when saying that *evolution is wrong*. These sarcastic remarks follow the interlocutor's (House) words that there are slim chances for someone to have an unknown pathology for so long. They come as evidence that, given they live in *21st America*, this would be explained by the stupidity of Americans (probably doctors or even the patient). The STUPIDITY feature becomes an explanation for a pathology that has not been discovered sooner.

Another possible interpretation for this utterance would be that, in America, many people truly believe that evolution is wrong (i.e., creationists), and try to impose these views in the school system, etc. Since House's (non-scientific) reference to the three cavemen is meant to prove that the nice caveman did not live long enough to procreate, it should not be contested, which Foreman nonetheless does. House's final remark underlines the fact that they live in *21st century America*, where people truly contest the veracity of evolution.

Example (76) is another instance of explicitation, where the second speaker clearly marks it as an example of what the first speaker said. The example also is taken from *House M.D.* In this scene, Dr. Cuddy reads out a review of Dr. House:

(76) Cuddy: Your attitude towards supervisory personnel is disrespectful, and a disturbingly large proportion of your comments are racist or sexist.
House: That top makes you look like an Afghani prostitute…would be an example of that.

Similar to example (75), this instance explicitly states a mockery toward (this time) his superior, Cuddy. The utterance *That top makes you look like an Afghani prostitute* is an explicitation of racist and sexist comments, previously mentioned by Cuddy's statement. The sarcastic incongruity is given by Dr. House's final remark *would be an example of that*. The modal *would* here allows this to be presented as a possible comment, and not an actual one, which adds to the sarcastic interpretation of this instance. Sarcasm explicitly targets Cuddy by comparing her to an *Afghani prostitute*. The different mental spaces at play here link various frames (i.e., race, sex, etc.) in a pretense space that the audience accesses. The example given by House of an *Afghani prostitute* refers back to Cuddy's statement, and the hearers will access that in order to get to the humorous interpretation.

Another example, also from *House M.D.*, would be (77) below. In this scene, still debating the possibility of niceness being a symptom for a much more complicated disease, Kutner makes explicit the fact that *jerkiness* exists, so the opposite should also. After explicitly introducing the word *jerkiness*, Kutner pauses for a while and looks at House, which explicitly marks him as the target of his intended reply. Note here that the explicitation is mainly marked by the pause and the gaze to House, rather than any other verbal elements:

(77) Kutner: He's saying that statistics are true too. The world is a bell curve, most of us fall within the standard deviation, but there are outliers. And if we believe in the existence of extreme jerkiness, which I suspect that we do...
[pause ~0.2 seconds, gaze to House, House turns around]
Kutner: Then we also have to accept the existence of the opposite extreme.

This is also an example of explicitation, where the speaker makes himself blatantly obvious about who the intended target of his sarcastic remark is. Although, unlike examples (75) and (76) above, there is no explicitness in Kutner's words per se, he intentionally pauses and gazes at House (who turns around, having understood what all this was about) in order to emphasize the *extreme jerkiness*. These elements in his behavior make sarcasm blatantly obvious for House, the hearers, and also the audience in order for the intended target to be reached. The humorous effect comes exactly from this explicitation, where Kutner sarcastically mocks House's *extreme jerkiness* (note also the use of the adjective *extreme*, which further reinforces the insulting remark through exaggeration).

The main results for the linguistic mechanism of explicitation in the study show that this is used in 15.0% of sarcasm. Given that similar results were found for 'saying the opposite' (14.1%), it is fairly safe to assume that this linguistic mechanism is as important as the 'opposite thought' present in the definitions for sarcasm in the literature. Consequently, by explicitly stating the sarcastic thought (i.e., giving an example), speakers are able to achieve a sarcastic, non-serious effect.

4.2.4 Metonymic inferencing

Metonymy, as discussed in Chapter 2, serves the role of establishing a reference-point construction between a conceptual source and a target (see also Tabacaru

& Feyaerts, 2016). Generally, metonymy has been viewed as relying on the most salient and prototypical element of a certain frame (Fillmore, 1976, 1982). Consider the following definition of metonymy, as suggested by Radden and Kövecses (1999, p. 21):

> Metonymy is a cognitive process in which one conceptual entity, the vehicle, provides mental access to another conceptual entity, the target, within the same idealized cognitive model.

Idealized cognitive models are, as explained in Chapter 2, structures which represent speakers' conceptual knowledge. In other words, metonymy is viewed as a "basic conceptual phenomenon" (Brône & Feyaerts, 2003, p. 18) where the most salient element of the frame is used in order to access the whole frame. Speakers will see the most salient element of a concept as a reference-point or a landmark for other elements that belong to the same cognitive model. Example (78) below is discussed in more detail in Brône and Feyaerts (2003, p. 19):

(78) A: How did you get to the airport?
B: I waved down a taxi.

The verb "to wave down" prototypically refers to the entire scenario that constitutes B's arrival at the airport. A is able to infer[41] that B waved at a taxi driver, made him stop, got in the taxi, told the driver where he was heading, paid for the ride, got out of the taxi when they reached the airport. Nevertheless, from B's point of view, it is the "waving down the taxi" that constitutes the most salient element of this scenario, and from then onwards, A is going to follow the right track and infer metonymically how B got to the airport. By using only the minimum information, the speaker leaves the recovery of the full implications to the hearer (Levinson, 2000; Panther, 2005).

Similarly, a classic example such as (79) below follows the same train of thought. In this case as well, interlocutors are able to infer metonymically to whom the speaker refers:

(79) The ham sandwich is waiting for his check. (Nunberg, 1978)

Metonymy thus creates natural inference schemes, as explained by Thornburg and Panther (1997) because they guide the construction of meaning through

41 See also Chapter 2, section 2.2.4 regarding pragmatic inferencing, which shows how inferences build up in conversations on what interlocutors say.

pragmatic inferencing (see also Panther, 2005). As highlighted by Brône and Feyaerts (2003), the utterance in (78) can be used by a waiter or waitress in a restaurant in order to refer to a client. The salient concept of FOOD (or, to be more specific, the HAM SANDWICH) is a reference to that particular customer, whose name is probably unknown and irrelevant for the restaurant staff. In the cognitive frame of RESTAURANT, this element is the most salient entity and allows the mental access to that client. Langacker notes (1993, p. 30) that "a well-chosen metonymic expression lets us mention one entity that is salient and easily coded, and thereby evoke—essentially automatically—a target that is either of lesser interest or harder to name." As such, in example (79) above, and in the context in which it is uttered, the most salient entity (ham sandwich) is a reference for a less salient one, typically less easily coded (the customer who ordered the ham sandwich). This is what Sweetser and Fauconnier (1996) call *frame metonymy*: we can call a customer by the food they order because the event takes place in the same RESTAURANT frame. The metonymic targets are then easily attained if they are included in the same frame. In other words, metonymy could be regarded as a cognitive short-cut. The two frames below proposed by Brône and Feyaerts (2003) show how these salient reference points link the target and the source within the frame:

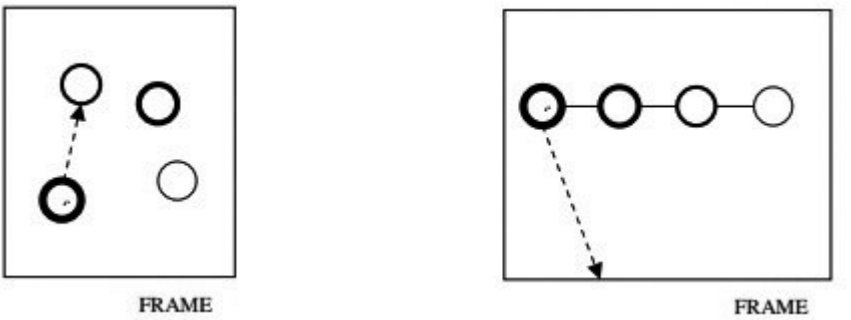

Fig. 28: Brône and Feyaerts' (2003, p. 20) view of metonymy in *The ham sandwich wants to pay* (left; salient reference point to an element in the same frame) and *I waved down a taxi* (right; salient reference point to the whole frame)

Unlike these regular cases of metonymy, sarcasm challenges the metonymic inferencing path because it builds up a non-serious space in which the intended target concept is located (where less salient features of a cognitive model are called to mind). This is unexpected and surprising, but given the common ground

that the interlocutors are supposed to share—they all participate with a certain role in a specific genre—the humorous effect can be expected to be successfully accomplished. As mentioned by Tabacaru and Feyaerts (2016: 4), metonymy can be defined in terms of a contiguity-based relationship between two linguistic or conceptual entities. Contiguity is seen as a non-similarity based association between elements from the same frame or between the frame and one or some of its elements (see also Ullman 1962, Feyaerts 1999). Tabacaru and Feyaerts further note that

> when, in a usage event, two elements are represented as being causally related—regardless of its plausibility let alone its correctness in the 'real world'—both elements are construed as linked within a single conceptual frame.
>
> (Tabacaru & Feyaerts, 2016, p. 4)

This would then count as conceptual contiguity in a cognitive linguistic framework, as argued by Dirven (1993: 14, quoted in Feyaerts 1999, p. 64).

The following example comes from *House M.D.* In this particular scene, we see Dr. House with a female patient to whom he announces she was pregnant:

(80) House: You were pregnant.
[...]
Sarah: I haven't had sex since I split up with my husband. That was almost a year ago.
House: Fine, have it your way. Immaculate Conception.
Sarah: Um, what do I do?
House: Well, it's obvious. Start a religion.

House's sarcasm is obvious with the final advice to *start a religion*, as well as the suggestion that this could be a 'case' of *Immaculate Conception*. The sarcastic meaning is built through means of metonymy which links the source and the target. In this example, two metonymies can be identified, both of which are included in the frame of RELIGION. These metonymies serve the role of reference-point constructions, like in examples (78) and (79) above. Here, Dr. House, who clearly does not believe his patient (who claims she has not had sexual relations for almost a year, and yet was pregnant), suggests *Immaculate Conception* as a valid excuse for her pregnancy. His advice to *start a religion* refers to Christianity and the birth of Jesus Christ.

Looking closely at example (80), two metonymies are at play in the humorous meaning of the message. The first one is represented by the phrase *Immaculate Conception*, which is the first reference-point to the religious meaning. This first

metonymy helps build up the second one—*start a religion*—which introduces more explicitly the frame of RELIGION that was inferred from the first metonymy. Both metonymies refer to the same frame (i.e., that of RELIGION) which the hearer accesses automatically because the birth of Jesus Christ and the beginning of Christianity are part of the common knowledge that people share.

In contrast, the classical view of metonymy implies that salient elements be brought into focus in order for a hearer to access the intended interpretation (*ham sandwich* is salient in a restaurant where the customer is having a ham sandwich). However, example (80) is humorous because less salient, even absurd elements are brought to the hearer's attention. The speaker here makes the reference to the birth of Christianity in order to mock the patient. The metonymy is created because the feature IMMACULATE CONCEPTION stands for the whole frame of RELIGION. In other words, the inferencing path created through means of metonymy is exploited, and the speaker brings into focus less salient elements which give a surprising effect to the discourse. Following the same kind of reasoning as in the *waving down the taxi* or the *ham sandwich*, a hearer is able to infer the reference to Christianity. The example is built on the same structure as a reference point, the only difference is that the outcome is surprising, which creates a humorous effect. Metonymy links the *start of a religion* to Christianity through means of reference-point construction and thus creates a sarcastic effect.

This can be seen as a cause-effect relationship (cf. Brône & Feyaerts, 2003), where the lack of sex leads to pregnancy, which leads to the inference of Immaculate Conception and the start of a religion, as shown in Figure 29 below. Religion is the more salient element (hence, in bold) in the frame, since it refers to Christianity in a more explicit way, whereas the other elements are less salient:

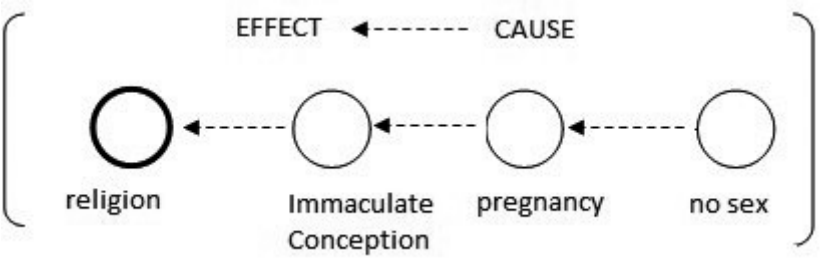

Fig. 29: Cause and effect in metonymy (Brône & Feyaerts, 2003)

Consider also example (81) below from *The Big Bang Theory*, also built on metonymy. In this scene, the characters Sheldon and Leslie are in Gablehauser's (head

of the department) office in order to discuss a dispute between the two of them. Leslie had insulted Sheldon and she continues to use the same insult (*dumbass*) to refer to him:

(81) Gablehauser: Dr. Winkle, what colorful name did you call Dr. Cooper this time?
Leslie: Dr. Dumbass.
[Sheldon's phone goes off]
[...]
Gablehauser: You need to get that, Dr. Cooper?
Sheldon: God, no.
Leslie: Well, don't turn it off; you might miss your call from the Nobel committee letting you know you've been nominated as dumbass laureate of the year.

Sarcasm here is obvious from the overt mockery towards Sheldon, as well as the incongruity in Leslie's words. It is clear that she is not being serious, because there is no such thing as *dumbass laureate of the year* (particularly when talking about the Nobel Prize). However, repeated throughout the discourse is her view of Sheldon as a *dumbass*. These sarcastic remarks are placed in a pretense-space, where Sheldon is first called *Dr. Dumbass* to finish with *dumbass laureate of the year* from the Nobel committee. Not only is he a doctor in being a dumbass, but this perspective also presents Sheldon as the biggest *dumbass*, recognized on an international level as *laureate of the year*. The audience accesses a non-serious pretense space where these remarks are not interpreted at face value. The feature *dumbass* is used as reference-point construction that best characterizes Sheldon's character. This metonymy could be situated in a CHARACTERISTIC FOR ENTITY frame (Peirsman & Geeraerts, 2006), where Sheldon is being characterized with the use of the adjective *dumbass*. Humor exploits salience, and it emphasizes a less salient element (*dumbass*) in order for the mockery to work.

Consider also example (82) below, taken from *House M.D.*, and combining sarcasm and stereotype humor. In this scene, House sees (what he judges to be) a strangely nice patient waiting for a consult. He stomps his cane on his foot to test his niceness. Metonymy here accesses the feature NICE as part of the CANADIAN frame:

(82) [House stomps his cane on Jeff's foot]
Jeff: Ow!
Debb: What the hell?

Jeff: (smiling) I'm sure it was an accident.
House: (to Cameron) Is he Canadian?

Unlike examples (80) and (81) above, in this example, there is no reference to the feature that is used to retrieve the frame CANADIAN (although this is made explicit later in the episode). The hearers have to infer that House believes he is Canadian from his behavior (i.e., being extremely nice). The fact that Jeff is being extremely nice makes House infer that he must be Canadian (the implication being that is the only possible explanation for his strange behavior). When the word *Canadian* is uttered, the hearers have to go back to the entire scene and take his behavior into account in order to link the EXTREME NICENESS feature to the CANADIAN frame. Sarcasm here targets Jeff particularly for his extreme niceness. Stereotype humor also touches the stereotypes and clichés around Canadians, such as EXTREME NICENESS. Hearers are led to infer that an extremely nice person can only be Canadian.

These examples are built in a pretense space (discussed in more detail later on). The link between the serious space and the pretense space are the metonymic reference-points that refer to less salient features to characterize a certain entity or person (in example [80], Christianity and the patient; in example [81] and example [82], a person). The audience activates the non-serious space when they realize the sarcastic incongruity and the non-seriousness of the speakers' words.

Regarding the non-serious spaces, in example (80), it is clear that Dr. House does not *seriously* advise his patient to start a religion. His utterance includes an overt mockery, since he does not believe his patient (i.e., that she was pregnant without having sexual relations). In a broader way and from the perspective of 'sarcastic targeting', his sarcasm can also be analyzed as targeting Christianity and the foundations of its religious beliefs. The sarcastic incongruity is achieved through means of metonymy that links common knowledge and the present situation. In example (81), Leslie's words include non-seriousness as well, because the audience is well aware that there is no such thing as *dumbass laureate of the year* (i.e., people do not receive awards because they are dumb). 'Sarcastic targeting' has Sheldon as receiver of Leslie's 'jokes'.

The results for metonymy show that it constitutes 22.7% of the total sarcastic instances. Metonymic inferencing in the present study is used with a variety of humor types, such as stereotype humor (as also seen in example [82]), gender humor, exaggerations, etc.

4.2.5 Metaphor

Metaphors, just like metonymies, can be exploited for humorous purposes. Metaphors have been defined as "understanding and experiencing one thing in terms of another" (Lakoff & Johnson, 1980, p. 5). Conceptual metaphors include mappings from a source domain to a target domain. According to Lakoff and Johnson (1980, p. 10), metaphors allow us to "comprehend one aspect of a concept in terms of another", which will "necessarily hide other aspects of the concept." Unlike metonymy, the source and the target in metaphors belong to different domains/cognitive models and allow a mapping between these.

Interestingly, Black (1993, p. 21) notes that "*taken as literal*, a metaphorical statement appears to be perversely asserting something to be what it is plainly known not to be" (original emphasis). Similarly, sarcasm is known to assert something incongruous to an expected reaction from the part of the speakers, which makes the metaphorical case of sarcasm rather complex[42]

In the following example, House, annoyed by the presence of his boss Cuddy, makes a remark to another doctor (Chase) that is meant to be heard by Cuddy as well. Her reply is built on a metaphor which is sarcastic, directly targeting House:

(83) House: [to Chase, because Cuddy is in the room] What, you've got her on speed dial?
Cuddy: I just follow the scent of arrogance.

Sarcasm (semantically built on a metaphor) appears in Cuddy's reply to House's remark, that she follows the *scent of arrogance*. These concepts (metaphor and sarcasm) are analyzed below for a clearer view on the phenomenon.

The metaphor *scent of arrogance* creates the link between the domain of SMELL (through the word *scent*) and the domain of BEHAVIOR (through the word *arrogance*). Arrogance being an attitude, it is thus clear that it cannot have a scent. At first glance then, these two concepts are completely different, but, as Lakoff and Johnson (1980) point out, certain features of the concepts are highlighted while others are hidden. In the present case, *scent* refers metaphorically to something strong enough that it can be smelled (i.e., ARROGANCE IS A SCENT).

The metaphor is seen on different levels since it includes an intended incongruity on which sarcasm is built. In this case, and for the purpose of sarcasm, the word *scent* may have a more positive connotation, whereas the word arrogance has a negative one. Semantically, the word *scent* may refer to a pleasant smell (in

42 See also Musolff (2017) for an account of irony and sarcasm in metaphor.

the sense of perfume), whereas *arrogance* refers to an unpleasant attitude from the part of someone. The incongruity between these two meanings (something pleasant connected to something unpleasant) and the incongruity created by the metaphor ARROGANCE IS A SCENT (since, literally speaking, arrogance cannot have a scent) mark the sarcasm in Cuddy's words. Another possible interpretation of this example would be the SCENT in the animal-frame, referring to the scent produced by an animal, which also represents sarcasm based on a metaphor. House in this case is compared to an animal that leaves a SCENT OF ARROGANCE.

Cuddy's sarcasm targets in this case House, the implication being that he is extremely arrogant, to a point that it starts to smell. Brône's (2008) proposal of humor analysis can be transcribed in a more complex figure, such as Figure 30 below. This figure contains two original frames (SCENT and ARROGANCE) which then interconnect to a blended mental space (Fauconnier & Turner, 1996, 1998; Coulson, 2005b) that combines both these elements, with the result *scent of arrogance*. As such, Layer 1 draws from two different frames (*scent* and *arrogance*) to create the sarcastic remark (*scent of arrogance*) in the pretense space. However, the word *scent* also belongs to a pretense space, since Cuddy does not refer to a real scent. Layer 1 thus combines House's real *arrogance* from the discourse space and the exaggeration *scent* from the pretense space, which then blend for the metaphor *scent of arrogance*.

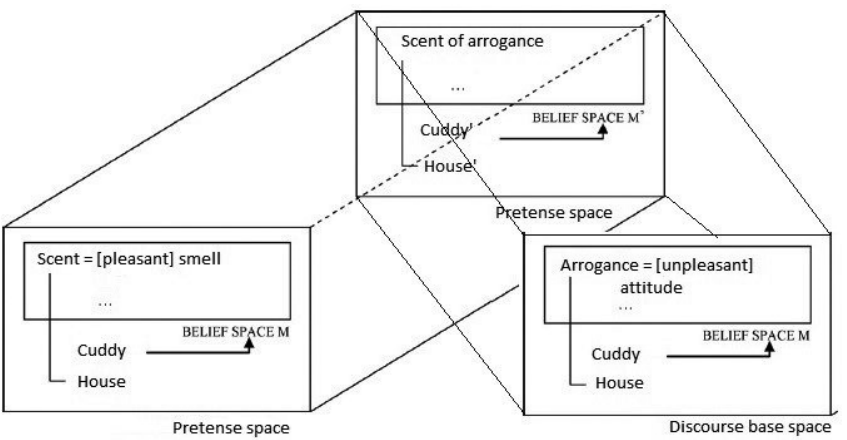

Fig. 30: Layered mental space configuration for metaphor

Another metaphor, RELIGION IS MERCHANDISE, can be seen in the example below, where House speaks of religion to a person at his door in terms of a product that one can buy, using the verbs *sell* and *buy*:

(84) Person: Have you heard the good news?
[holds up a book]
Person: Happiness is possible. And not just in this life, but in the next, where you can...
House: Oh, you're selling religion. I'm sorry, I bought some Islam yesterday.

RELIGION IS MERCHANDISE that one can buy and sell accordingly. As such, House *bought some Islam*, which allows representing religion in terms of quantity, just like any other product would do. Once more, two mental spaces are blended in order to achieve this metaphor: the frame of RELIGION, and the frame of MERCHANDISE. These elements create the discourse base space that refers to the pretense space created sarcastically by Dr. House. Similar to example (83) above, sarcasm here targets the person the speaker is addressing (i.e., the person at his door holding up the Bible). The mockery is evident with the use of the metaphor RELIGION IS MERCHANDISE. This also targets religious beliefs, with Dr. House's remark that he had already bought *some Islam*, and the implication that he is all set and does not need any more of this MERCHANDISE. This statement emphasizes an image where religion is sold by different individuals, and the remark that he had bought *some Islam* makes it impossible for him to buy any other 'product'. Semantically, the verb *buy* also refers (metaphorically) to the verb *believe* and enforces the relationship between a seller and a buyer. The fact that he *bought some Islam* places House on a different level than the person holding up a Bible that he cannot *buy* (in the sense of *believe*).

Consider also a more complex example, such as (85) below. This scene, taken from *The Big Bang Theory*, combines sarcasm and register humor. Here, Sheldon mocks his friend Leonard who is disappointed by the outcome of his relationship with Penny:

(85) Sheldon: Well, at least now you can retrieve the black box from the twisted smoldering wreckage that was once your fantasy of dating her, and analyze the data so that you don't crash into Geek Mountain again.

This metaphor that can be described as LOVE IS A FLIGHT and DECEPTION IS A CRASH (similar to GOOD IS UP and BAD IS DOWN[43] because it shows that Leonard's plans with Penny crashed, went down) is actually built on different semantic elements that refer to planes and flying. The *black box* could be used by Leonard to retrieve the *data* and not crash (be disappointed) again, the wreckage is associated with his *fantasy of dating her* (the metaphor DECEPTION IS A CRASH is reinforced), planes crash into mountains, but this time the whole situation is associated with a so-called *Geek Mountain* (reference to their background and their being nerds). Love is thus associated with flying to which the opposite (the crashing) applies when one is disappointed (such as Leonard in this situation).

The humorous effect arises in this example from sarcasm—the mockery addressed to Leonard and his *fantasy*—and also from register humor—the creativity in associating all these elements from distinct domains: love and flying, disillusionment and crashing. Combining all these diverse elements creates a complex structure and the metaphors are all used against Leonard, who becomes the "butt" of Sheldon's joke, so to speak.

To summarize, similar to metonymic inferencing, the process of metaphor in sarcasm is rather complex because it builds up complex mental spaces that come together in order to create humorous implications. These various mental spaces also create the common ground that allows building up the pretense space and the humorous implications. The different elements link the serious mental space to the non-serious one, which combines the elements from these domains.

The main results from the corpus regarding metaphor show that this linguistic mechanism provides 9.5% of the total number of sarcastic instances.

4.2.6 Shift of focus

In the following scene, taken from *House M.D.*, the team realizes that a female coworker is not wearing underwear. Foreman interrupts the discussion with remarks about the patient's condition. Later in the episode, when the team discusses the patient's condition again, brainstorming for a new treatment, the exchange between House and Foreman recalls the previous exchange about underwear. In a discussion on the patient's new symptoms, the focus of attention is switched, and the hearers have to refer to the previous conversation in order to access Dr. House's allusion. For the sake of relevance, the time captions are given

43 See Lakoff and Johnson, 1980.

between brackets in order to make the lapse in time between the two scenes more visible:

(86) Kutner [10:07]: So you're not wearing any underwear?
Foreman [10:09]: Uhh... There's a guy bleeding...
House [10:11]: Foreman! She's not wearing any underwear. You used to be more fun.
[...]
House [27:16]: Amyloidosis was your idea.
Foreman [27:17]: I was wrong.
House [27:18]: Yeah, me too. You were never fun.

Clearly, the focus of attention in (86) is the patient's condition, particularly since the final exchange takes place later on in the episode, after the first exchange between Foreman and House. The focus is then shifted and the hearer has to go back to the previous scene (i.e., 17 minutes earlier in the episode) in order to fully understand Dr. House's utterance. If the focus of attention is the patient's condition and House's remark *Yeah, me too* would make one access this specific frame (PATIENT'S CONDITION), he then has to switch to another frame (FOREMAN) and go back to the exchange where House says *You used to be more fun*. As such, if the reply *Yeah, me too* aligns with the patient's condition, and the hearers are tricked into accessing the frame of PATIENT'S CONDITION and consider this as salient for the context, they will have to refer to the past exchange and switch to another frame when hearing *You were never fun*. For the sarcastic effect of the scene, in example (86), Dr. House intentionally switches these elements. It is once again based on common ground between speakers and the audience, because the ground is represented by the earlier exchange between the two speakers. This previous scene is backgrounded in the hearers' mind and they have to switch the focus[44] on it to access the sarcastic interpretation.

44 This process is similar to the figure-ground reversal discussed in Cognitive Linguistics. This relation was first introduced by Talmy (1972) and is discussed by Croft and Cruse (2004) as a fundamental construal operation in cognitive linguistics because it specifies the speaker's attention. Talmy (1983, p. 232) describes the figure as "the object which is considered as moving or located with respect to another object" and the ground as "the object with respect to which a first [object] is considered as moving or located." Several humor-related works discuss humor from the point of view of figure-ground reversal (Attardo & Raskin, 1991; Attardo *et al.*, 2002; Brône & Feyaerts, 2003).

In terms of sarcastic targeting, Dr. House's sarcastic words are aimed at mocking Foreman. If the first exchange was annotated as a tease, playfully aimed at Foreman, the second one comes as an annulment of the tease in order to mock/criticize him. In any case, the reversal of the focus of attention is done intentionally in order to change the outcome of the phrase.

Consider also example (87) below, where the same shift in focus creates the humorous effect. House intentionally shifts the focus of attention, creating the same effect as explained above. The inference that the hearers are likely to access is then shifted to a new, sarcastic one. In this scene, Dr. House is with a patient who has herpes. When told about the disease, the patient defends himself by mentioning his long-lasting marriage to his wife:

(87) Mr. Lambert: It is my prostate, isn't it?
House: No, not your prostate. Herpes.
[...]
Mr. Lambert: Look, this is impossible. I have been married for twenty years.
House: Had any sex in those twenty years?

In (87), the speakers base their utterances on inferences they draw from their interlocutor's speech; hence, the most likely inference that the hearers will adopt is intentionally switched to another, less salient one. Herpes being a sexually transmitted disease, Mr. Lambert's reply *I have been married for twenty years* infers that he had sexual relations with only one person: his wife. The backgrounded situation in this case is created by the element SEXUAL RELATIONS, while the focus is Mr. Lambert himself. The most likely inference the hearers will access is transcribed as follows:

(a) It is impossible for Mr. Lambert to have herpes since he only had one sexual partner.

This inference is not explicitly said by Mr. Lambert, but it is intended as such and therefore his utterance expected to be interpreted following this train of thought. Nonetheless, since he only explicitly reminds Dr. House of his long-lasting marriage, this creates ambiguity that the latter will use in his reply. In Dr. House's reply, the focus of attention (Mr. Lambert) is shifted to a more backgrounded role, whereas the background element (SEXUAL RELATIONS) is brought into focus for a humorous effect. The inference in (a) is switched to a new one, where the background (SEXUAL RELATIONS) is the most salient feature:

(b) It is possible for Mr. Lambert to have herpes since he had sexual relations.

Sarcasm here targets more particularly the interlocutor, Mr. Lambert, by sarcastically inferring that he did not have sexual relations with his wife in their twenty years of marriage. On a more general level, it can also represent a mockery aimed at marriage per se.

Another example would be (88) below, also from *House M.D.* In this scene, discussing Cuddy's way of meeting men, House's first utterance refers to how easily Stacy can meet men (Stacy being House's ex-fiancée):

(88) House: She's not like you. She can't just walk into a bar and pick up her soul mate in 20 minutes.
Stacy: I met Mark at a fundraiser that happened to be held at a...
House: You met me at a strip club.
Stacy: You were the worst two dollars I've ever spent.

House's utterance refers to how Stacy met her husband (Mark) at a bar. He also refers to how the two of them met (i.e., House and Stacy) at a strip club. Stacy here plays on the inferences that are drawn from this exchange: she met Mark at a bar where the two of them were part of a fundraiser, and she met House at a strip club. The inference here would be the same as the previous one: both of them were in the same place. It is this inference that Stacy shifts, and from the focus on the two of them being in the same place at the same time, she switches to an interpretation that places House as a stripper. This is done with the use of salient features in the frame STRIP CLUB, where the hearers would likely infer that the strippers were female. This inference (based on salience) is exploited and the attention shifted to a reading that puts House in the role of a stripper. Moreover, Stacy also talks about money—*you were the worst two dollars I've ever spent*—implying that House is a second-rate stripper, and a waste of her money (note also the specification *two dollars*, which reinforces that she had not spent a lot of money on House).

By shifting the attention to House instead of two people meeting at a place (be it a bar, or a strip club), Stacy manages to make House the target of her sarcasm. He thus becomes a cheap stripper and also a bad one (hence the waste of her money). The whole utterance contains an incongruity (she is not being serious by implying that House is a stripper) and builds a Layer 2, a pretense space, where the focus is only put on House. This builds on the common ground that contains knowledge about strip clubs and how they function, managing to turn the attention onto one element only (House).

In the examples discussed above, the shift of focus happens to the inferences that hearers are likely to draw from the information they get from the speakers. These inferences are then exploited for a humorous outcome. Yus (2003, p. 1308) believes that humor is based on a "mind-reading ability" from the speaker who will infer beforehand the cognitive processes the hearers are likely to go through to get to the interpretation of utterances. In these cases, the backgrounded situations are brought into focus in order to trump the hearers' expectations.

The main results for shift of focus reveal that it accounts for 9.2% of the total sarcastic instances. This mechanism is also used with misunderstandings (where the interlocutor's focus of attention is on a less salient element) or with insider humor, self-glorification, etc.

4.2.7 Reasoning

Some examples of sarcasm build on deductive reasoning, which keeps the features of target and incongruity typical of sarcasm. This mechanism includes a hypothesis (P) and a conclusion (Q). Schechter (2013) points out that in deductive reasoning "the truth of the input propositions (the premises) logically guarantees the truth of the output proposition (the conclusion)." Consequently, it is the hypothesis that generates the truth of the conclusion. Most of these examples are introduced by an *if*-clause, which links the hypothesis and the conclusion. Other cases are also construed in the form of an inference, so only the conclusion is presented as a result of the information the speaker is given.

In example (89) below, taken from *House M.D.*, the team of doctors discusses a patient (a magician) who predicted his own death. House turns the situation around, emphasizing that the reverse situation would have been more impressive:

(89) Cole: It was creepy. The patient predicted his own death.
House: Would have been more impressive if he predicted that he wasn't going to die. Of course, that takes longer to prove.

This sarcastic remark takes the form of deductive reasoning and is presented in the form of an *if-clause* (a remote if-clause, which combines a type three and a type two conditional not likely to happen). The incongruity arises from the very fact that House's suggestion is impossible. The hypothesis (*he wasn't going to die*) guarantees the truth of the conclusion (*would have been more impressive*). Sarcasm here is aimed at the magician (and most likely, at people believing that he

was actually capable of predicting his own death), which is made clear by the statement *Of course, that takes longer to prove*. Given the information he is presented with, House sarcastically reverses the outcome of the situation by pointing out how easy it is for a patient to predict his own death since he is in a hospital, sick. This view is switched to an exaggerated view, where it *would have been more impressive if he predicted that he wasn't going to die*.

Consider also (90) below, where Dr. House sends one of the other doctors to check a patient's brain. When the doctor returns with good results (i.e., his brain does not show any signs of disease), Dr. House's sarcasm is expressed through means of reasoning (introduced by an *if*-clause) once again to mock the patient, who had been extremely hostile towards them:

(90) Cameron: Head's clean. You were wrong, his faculties are intact.
House: Too bad. If his brain was addled, we wouldn't have to listen to anything he says.

The type two *if*-clause here also characterizes a remote situation (not likely to happen), and not an open one (i.e., still possible to happen). This form of deductive reasoning can be transcribed as follows:

If P,	then Q
If his brain was addled	we wouldn't have to listen to anything he says

Sarcasm here presents the incongruity of a remote/imagined situation, not likely to happen,[45] as mentioned earlier. It targets the patient by presenting a situation where they would not have to listen to what he says (the implied meaning being that everything he says is already confusing, and they needed some kind of confirmation not to listen to him anymore). Note also the use of the verb *addled*, which is mostly used in humorous discourse. This verb further reinforces the mockery toward this particular patient. Sarcasm is also present in the regret House shows when he hears the news (note the exclamation *Too bad*), which implies that he would have been happy in the event that something was wrong with the patient's brain functions.

In another exchange, taken from *The Big Bang Theory*, Sheldon discusses with Leonard about women's attraction to an alpha male. Sheldon's line refers to research he has been doing to help his friend Leonard to stay with his girlfriend

45 See also section 4.3. where sarcasm interacts with joint fantasy.

(whom Sheldon likes). Sarcasm is used in Leonard's reply and is also presented in the form of an *if*-clause construction:

(91) Sheldon: When I fail to open this jar and you succeed, it will establish you as the alpha male. You see, when a female witnesses an exhibition of physical domination, she produces the hormone oxytocin. If the two of you then engage in intercourse, this will create the biochemical reaction in the brain which lay people naively interpret as falling in love.
Leonard: Ha…Would it work if I just punched you in the face?

The same *if*-clause construction is used by Leonard to create the sarcastic effect targeting Sheldon. The suggestion *would it work if I just punched you in the face* is an implicature drawn from Sheldon's research on women's attraction to the alpha male. Given that women are attracted to *exhibition of physical domination*, Sheldon suggests Leonard should be the one opening the jar instead of him. This is followed by details that Sheldon researched regarding alpha males and women's interest in them. Sarcastically, Leonard suggests punching him in the face, inference drawn from the same train of thought suggested by Sheldon in the first place. If women are attracted to *physical domination*, then punching Sheldon in the face would also count as such. From just opening a jar Leonard suggests *physical domination* by punching Sheldon in the face. A small action is thus exaggerated, using the same elements Sheldon provided from his research (mainly, the *physical domination* an alpha male would demonstrate). Sarcasm here turns the situation around, and a jar opening turns Sheldon into the target of Leonard's joke, since he would be the receiver of his punch.

The examples discussed here are all built starting with an *if*-clause construction that allows the speaker to imagine certain scenarios differently. Sarcasm is easily construed in a pretense space drawn from the common ground set by interlocutors. Note also the use of remote conditionals (type two and type three) that mark the unlikeliness of these events actually taking place (especially the type three conditional in [89] in the structure *would have been more impressive*). The speakers use these conditional structures for the humorous effect of the imagined scenes. The actual scenes are reversed to imaginary scenarios that imply a humorous effect.

The results show that a total of 9.2% sarcastic utterances are built through reasoning. The rest of the reasoning instances in the corpus create misunderstandings, exaggerations, or joint fantasies.

4.2.8 Rhetorical questions

Rhetorical questions are not used to request information, but to convey assertions (Koshik, 2005). Although Koshik (2005, p. 2) notes that sometimes rhetorical questions do get answers, they are not intended as seeking information because the answers are obvious. These structures are exploited in humor, for a humorous result. They are used to explicitly make a point and build the humorous discourse.

Consider an example such as (92) below, taken from *House M.D.* In this scene, House is visibly annoyed with his friend Wilson and his new girlfriend Amber for having shared one of his secrets. The rhetorical question comes at the end of the exchange, when he also gets annoyed with Kutner. After listing all the possible explanations for a patient's medical condition, Kutner adds number three, which is what House did in order to play a game on his team. He gave them someone else's blood to test, saying it was his:

(92) Kutner: Patient tested positive for syphilis, right?
House: Is this some sort of recap?
Kutner: But why did he test positive for syphilis?
House: Oh, I know this!
Kutner: Either one, he has syphilis.
House: I was going to say that.
Kutner: Or two, the test was wrong twice. Or, three, he gave us someone else's blood.
[House stops and turns around]
House: Who?
Kutner: Amber.
House: Get that idiotic smile out of my face. I've got to go on a killing spree.
Kutner: Or, four, he has something that tests positive for syphilis.
House: [Sighs] It's not Chagas.[46]
Kutner: He worked in Costa Rica before he was married.
House: Is two a spree, or do I have to kill you too?

Although there are several sarcastic remarks in this exchange, we only focus on the last reply. Sarcasm takes here the form of a rhetorical question, not meant to

46 Chagas disease is a tropical disease in South and Central America.

be answered, but with a humorous purpose. The target of House's sarcasm is Kutner who starts annoying him with the hypotheses regarding the case. The killing spree, already introduced earlier, is an exaggeration of his anger (i.e., he is so angry, he has no control and has to go on a killing spree). Generally, a killing spree includes two or more victims, which, firstly, refers only to Wilson and Amber. The rhetorical question includes Kutner in this killing spree, explicitly stated by House: *Is two a spree, or do I have to kill you too?* This implies that Kutner is starting to become annoying. This rhetorical question does not seek to be answered by Kutner, as mentioned before, but rather to make a point. Since House is being sarcastic, it is also not meant as a serious accusation, but rather to include him in the targeted people at whom he is annoyed. The common ground built on these elements (his anger, Amber having told House's secret to all the team members, etc.) builds the pretense space where House goes on a killing spree to get revenge for their behavior (by *they*, we understand Amber and Wilson, the people aware of House's game, and also Kutner who is annoying House with his assumptions). The rhetorical question here has the purpose of making Kutner stop suggesting further hypotheses to House regarding this patient's case.

In example (93) below, also from *House M.D.*, House returns to the office having earlier left the members of his team to work by themselves on a case. The doctors are visibly tired and Cameron gets annoyed when House asks them what they have been doing. Although the exchange between the three characters is built on questions, the last one is a sarcastic rhetorical question:

(93) House: What'd the bone marrow biopsy show?
Foreman: Don't have the results.
House: What? What have you been doing all night?
Cameron: Jell-O shots and wild sex, what else?

Sarcasm here is represented by the rhetorical question in Cameron's reply (*Jell-O shots and wild sex, what else?*). Cameron also changes the frame to possible drinking and sexual activity that they might have been doing instead of working. In the way the question is formed, an answer is not expected, since she builds a pretense from House's question (which could also be considered a rhetorical question, as he implies they have not been doing any work). Similar to the other examples, the question is not meant to be answered (note also the use of the structure *what else?*) but to point out the absurd implication drawn by House. The target here is made possible by Cameron's implied meaning that House's question does not make any sense.

Another example is (94) below, from *The Big Bang Theory*. Sarcasm is once again formed as a rhetorical question which contains the humorous implications. Late at night, Sheldon knocks on Leonard's door to show him something on the Internet; more specifically, his girlfriend's Facebook page. He starts by showing him the laptop, with the intention of focusing on what is on the screen, but Leonard takes advantage of the ambiguity in his request and answers using a rhetorical question:

(94) Sheldon: [showing him the laptop] Tell me what you see here.
Leonard: The blunt instrument that will be the focus of my murder trial?

The ambiguity in Sheldon's indirect question is marked by deixis, more specifically, by the adverb *here*. *Here*, in Sheldon's perspective, refers to a specific location, the laptop's screen where his girlfriend's Facebook page is displayed. Instead, Leonard exploits this ambiguity and refers to the entire computer. Sheldon's question is thus reversed as to refer to the whole computer. His answer becomes a rhetorical question (*The blunt instrument that will be the focus of my murder trial?*) where the *blunt instrument* refers to the laptop Sheldon is holding in his hands. The murder trial introduces the element of murder, where Leonard would be the defendant. The implication behind this rhetorical question is that Sheldon will be murdered with his laptop by Leonard. Again, the whole construction is meant to make a point, and not a serious accusation; Leonard conveys that Sheldon is being annoying (by waking him up at night), which is probably what all these examples have in common.

Most of the rhetorical questions in the study build sarcasm, which account for 7.3% of sarcasm. Sarcasm is thus formed by a question where the answer should be obvious, but this form is exploited for a humorous effect. The rhetorical question provides rich implications that build humor, as seen above. The answer contained in the rhetorical question presents the incongruity and the target typical of sarcastic utterances.

In the next section, some examples are presented where sarcasm interacts with other humor types. Given that sarcasm interacts occasionally with most of these humor types (register humor, stereotype humor, gender humor, sexual humor, etc.), we only focus on humor types that interact with sarcasm in more than 10 examples.

4.3 Sarcasm combining with other humor types

As stated in Chapter 3, when analyzing the data, it was difficult for some instances to be included in one humorous category only. Consequently, utterances that could be analyzed from different perspectives were annotated accordingly. This results in the interaction of several humor types. For instance, sarcasm can be associated with exaggeration or hyper-understanding, which creates rich implications and meanings from the perspective of the humorous type involved. Interestingly, when this is the case, the semantic mechanisms at play can be more complex, since they draw from the two (or more) humor types interacting with each other. In other words, sometimes the linguistic mechanisms presented in section 4.2 above interact with other linguistic mechanisms as well (as has been mentioned in Chapter 3). An example would be a case of hyper-understanding combined with sarcasm, where the linguistic part implies a key element allowing the hyper-understanding and a possible metonymy or a metaphor granting the sarcastic effect.

In this section, we take a closer look at such examples, where sarcasm can be seen as a background or foreground tone for other humorous types.

4.3.1 (Joint) Fantasy

Joint fantasy is a typical type of interactional humor because it involves an imaginary situation or experience that the interlocutors build between them. The interlocutors share this imaginary experience and each of them adds elements and details to this imagined situation. Kotthoff (2007, p. 278) describes joint fantasizing as "short contributions which create coherent scenes through the incremental structuring and augmentation of unreality." In the study, we only encountered less prototypical cases, where an interlocutor generally builds such an imaginary situation/experience alone, without the involvement of the other interlocutors. He thus suggests the imaginary situation to the others, unlike more spontaneous uses of humor, where the interlocutors 'play the game' and add elements to the suggested situation.[47]

Example (95) below represents (joint) fantasy and is taken from *The Big Bang Theory*, where the speaker (Leonard) imagines a whole situation happening and starts having a panic attack because of it. The humorous effect comes from the

47 See Kotthoff (2007), Feyaerts (2013), and Feyaerts and Oben (2014) for more on joint fantasy in spontaneous humor.

fact that this experience has not happened yet, and has little chance of happening, but creates nonetheless a panic attack in the speaker's mind. It thus creates a clash between two different situations: an actual one (the friendly relationship between Leonard and his neighbor) and an imagined one (the imagined scenario in Leonard's mind). The speaker (Leonard) here imagines how a date with his neighbor (Penny) could go. The tone of his voice rises and he even starts shouting as he proceeds with the imagined situation and as he begins to feel the panic attack building up (the words in bold mark the rise in the intonation):

(95) Leonard: Maybe take a walk afterwards, talk about things we have in common, "You love pottery?", "I love pottery!" You know, there's a pause, we both know what's happening, I lean in, we kiss, it's a little tentative at first, but then I realize she's kissing me back, and she's biting my lower lip you know, **she wants me, this thing is going the distance, we're going to have sex! Oh, God! Oh my God!**

In joint fantasy, the humorous effect is generated through the fact that the situation as a whole is imagined and is probably unlikely to happen in real life. However, it implies involvement from the part of an audience (at home, watching the show), who can imagine the fantasized situation, preconditioned by common ground. The details of the situation (for instance, the imagined conversation with Penny: *"You love pottery?", "I love pottery!"*) also highlight the humorous result of an experience of this kind. Humor here arises also from the fact that Leonard starts imagining this situation, which is perceived as imagined by the hearers, and still takes it so seriously as to get a panic attack because of it. It is also the clash between the possible and the impossible that creates the humorous effect.

Clearly, an interlocutor could take advantage of such a situation and suggest elements that are *intentionally* incongruous with real/possible situations. In such cases, the interlocutors and the audience are well aware of the fact that the speaker is being sarcastic, as in (96) below. The example is taken from *House M.D.*, and presents the team analyzing a patient's angiogram[48] of her feet. The doctor in charge (Chase) mistakenly used the same foot twice on the angiogram. Dr. House spots the error and suggests an imagined situation, i.e., (joint) fantasy:

48 An angiogram is a medical procedure used to visualize the inside of organs or blood vessels in the body.

(96) House: You guys see the problem here?
Foreman: [stands up, takes a look] There's no indication of any abnormalities, no lesions, no spurs, no masses...
House: Her toes are screwed up. They're backwards. Do you guys know how much surgery it's going to take to swap them back?

The imagined situation that creates the (joint) fantasy is represented by the so-called surgery *to swap them [the toes] back*. Unlike example (95) where Leonard's imagined situation has little chance of really happening, Dr. House's suggestion is clearly sarcastic because it gives an absurd solution to the so-called problem. Moreover, Dr. House's suggestion targeting his team also implies where the actual problem is. Sarcasm tells them where to look and acts as an actual suggestion to the patient's medical problem. The speaker's first utterances, which are evidently sarcastic because of the clash they imply (*her toes are screwed up*, *they're backwards*), allow to build the (joint) fantasy of a surgery in order to swap them back.

The incongruity is present in the incompatibility between what he is saying and is obviously not true (*her toes are screwed up*, *they're backwards*). He does not just point out that the angiogram was done on the wrong foot. The reading as such is impossible and adds to the sarcastic (joint) fantasy of someone having to go through surgery to swap one's toes back to normal. Secondly, the target of these sarcastic utterances (*her toes are screwed up, they're backwards*, and *Do you know how much surgery it's going to take to swap them back*?) is not only Chase who did the wrong angiogram, but also the other members of the team who analyze the angiogram but cannot see that it shows the same foot twice.

Example (97) below shows another instance where (joint) fantasy is used sarcastically by the speaker (Dr. House) in order to mock his interlocutor. In this scene, Foreman, who had not believed that someone's aggressiveness could be accounted for by a medical condition, realizes his error:

(97) Foreman: That tumor caused random shots of adrenalin which obviously led to the rage attacks that made him become a murderer in the first place.
House: My God, you are right! Let's call the surgeons; we've got to save that tumor. Put it on the witness stand.

Similar to example (96) above, where the suggestion to do a surgery *to swap someone's toes back* was sarcastic in order to mock the team of doctors analyzing the angiogram, this instance targets Foreman and his previous beliefs (which he

makes clear throughout the episode) that a person cannot be enraged and kill someone based solely on their medical condition. Sarcasm in (97) is built on a metaphor (see Section 4.2 above), where the tumor is personified and spoken about as if it were a human being: *put it on the witness stand*. The metaphor TUMOR IS A PERSON is clearly sarcastic, since the imagined situation is a mockery toward Foreman and his previous beliefs, as well as impossible to bring about. Humor arises here from the impossibility of this taking place (i.e., putting a tumor on a witness stand). As a non-serious suggestion, the incongruity between real-unreal and possible-impossible is what creates the sarcastic/humorous effect of the exchange.

Additionally, these humorous examples involve structured layers of meaning: Leonard's fantasy involving Penny, House's suggestion of a surgery that could swap the patient's toes back to normal, as well as putting a tumor on a witness stand all happen in a pretense space. The audience accesses these pretense spaces, different to the reality space set up in the series. In Leonard's case (example [95]), the pretense space involves the entire imagined situation where Leonard and Penny's date goes as he describes it. The humorous effect comes from the fact that Leonard gets so excited by the imagined situation that he mistakes the pretense space for a reality space, wherein the situation he suggests is likely to happen. In the second case (example [96]), Dr. House's (joint) fantasy is in fact an implication of where to look for the medical problem. The two spaces being linked as they are (i.e., through knowledge of the common ground shared by speakers), the doctors have to refer to the reality space in order to get to the intended interpretation. The same happens with example (97), where Foreman's beliefs are mocked by Dr. House when he suggests putting the tumor *on the witness stand*. Compared to example (95) where Leonard's situation is unlikely to happen, these two other imagined scenarios presented above are certainly sarcastic, since they cannot happen. Rather, the clash they represent serves another role, that of mocking a certain target (the team of doctors in the first case, Foreman in the second case). They are used intentionally for this purpose.

The results in the study concerning (joint) fantasy and (joint) fantasy used with sarcasm reveal that this humor type was used in 65 instances, of which 11 were sarcastic and intentionally used by the speaker in order to mock the interlocutor.

4.3.2 Hyper-understanding

The term 'hyper-understanding' was coined by Veale *et al.* (2006) and has been defined as a "sudden manipulation of the discourse space that has been set up in the previous utterance" (Veale *et al.*, 2006, p. 305), as already explained in Chapter 3.

An example of hyper-understanding, drawn from the study, is (98) below, where the word *look* takes two distinct semantic meanings, once as a noun in Leonard's usage and afterwards as a verb, in Howard's interpretation. In this scene from *The Big Bang Theory*, the two friends talk about the neighbor's (Penny) new boyfriend (also, it is known by now that Leonard has a crush on Penny):

(98) Leonard: No, I'm not jealous; I'm just a little concerned for her. I didn't like the look of the guy that she was with.
Howard: Because he looks better than you?

Clearly, Howard takes advantage of Leonard's poor choice of words when he says he does not like *the look of the guy*. The noun *look* in Leonard's interpretation refers to physical appearance, but the implication is that he might look in some way dangerous. This meaning is overlapped by Howard's interpretation, where he uses *look* as a verb. This time, the reading is reversed, and even though it still refers to physical appearance, the implication is that the guy is attractive, good-looking (hence, the adjective *better*). The hyper-understanding is possible through polysemy, where the first meaning of a word (in this case, *look*) is reversed with another meaning of the same word/form. Thus, the *dangerous appearance* interpretation in the first utterance is replaced by the physical attractiveness, both meanings generated by the same form. In the second case, the adjective *better* allows the positive reading instead of the negative one implied by Leonard. This key element allows Howard to 'turn the tables' on Leonard (lexically, in this case). The effect is humorous because of this reverse interpretation and the switch in meanings.

Notably, there are a certain number of resemblances between the concepts of hyper-understanding and sarcasm (see Tabacaru & Lemmens 2014). Both concepts draw on Superiority Theory, where the speaker targets someone to mock (or trumps the interlocutor, in the case of hyper-understanding). This is probably why these two concepts also interact. In example (99) below, the meaning of the key element (*good*) is changed by Sheldon, who shifts the perspectives of the given context. In this scene, Leonard comes in listening to a song on his iPod and singing out loud:

(99) Leonard: [singing] You don't know me, you don't wear my chains… Oh, yeah. God, that's a good song.
Sheldon: If you're compiling a mix CD for a double suicide.

The key element that allows hyper-understanding is the adjective *good*. The first meaning that comes to mind when Leonard utters *that's a good song* is switched by Sheldon's remark *if you're compiling a mix CD for a double suicide*. The two interlocutors use different meanings/interpretations of the same adjective, such as transcribed below. The same form (*good*) makes the shift possible from one reading to the other, which allows trumping Leonard's initial/intended interpretation:

(Leonard) Good song = a high quality song
(Sheldon) Good song = right song for a given situation

Sarcasm comes in the form of reasoning (section 4.2) introduced by an *if*-clause: *if you're compiling a mix CD for a double suicide*. Thus, in this particular case, the song Leonard is listening to would constitute a *good* (appropriate, right) *song*. Sarcasm here is built on the incongruity arising from Sheldon's reasoning and the exaggerated claim of *double suicide*.[49] The implication would be that Leonard's song would be appropriate in a tragic event. The incongruity also targets Leonard's song, mocking his taste in music for this particular song.

In example (100), taken from *House M.D.*, the key element that triggers the hyper-understanding is the adjective *stronger*. This time, the key element is not repeated by the second speaker, but rather its meaning paralleled by its antonym in the reply. The interlocutor (House) plays on the meaning of this word and on the intended message of the speaker (Cameron). When these two concepts interact (hyper-understanding and sarcasm), the example semantically draws on the features of both humor types:

(100) Cameron: Are there any stronger treatments for the organophosphate poisoning**?**
House: Oh, damn it! You caught me. We went with the weak stuff, just trying to save a little money**.**

49 This example builds up on sarcasm, hyper-understanding, but also on exaggeration (*double suicide*) and joint fantasy (*a double suicide*). For the sake of relevance, we only focus here on the features of sarcasm and hyper-understanding, but this instance can also be analyzed using the two other humor types listed here.

Cameron's intended message is to see whether they have explored all the possibilities and whether the patient received the strong(est) treatment. However, House hyper-understands this message and turns the tables on Cameron, playing on the meaning of the adjective *strong*. The parallelism is once again lexical, because House takes advantage of the meaning of the word in order to turn the tables on Cameron. Consequently, he uses its antonym to give a new reading to the situation (i.e., he did not use the *strong* treatment, he used the *weak* treatment). The hyper-understanding is triggered by the key element *stronger* in order to trump Cameron. Moreover, the interaction with sarcasm (*you caught me*; *we went with the weak stuff, trying to save a little money*) results not only in the incompatible readings but also in more overtly targeting Cameron, whose suggestion now sounds silly. Unlike the previous example, where the noun *look* is replaced by the verb *look* in order to trump the previous utterance, this time there is an obvious incongruity in what the second speaker says. As such, House makes it clear enough that what he says is not true and even comes up with a false excuse for this implied behavior (i.e., *went with the weak stuff, trying to save a little money*).

Briefly, when sarcasm interacts with hyper-understanding, features from both humor types are found in the humorous exchange. The speaker plays on the key element (*look, good, stronger* in the examples presented here) that triggers the hyper-understanding, adding new humorous implications to the discourse. The results show that hyper-understanding was used in 95 instances, of which 21 of them were also sarcastic.

4.3.3 Exaggeration

Exaggeration, as presented in Chapter 3, revolves around the use of hyperboles. Similar to metaphor, when using hyperboles, a speaker knows that what he is saying is untrue, but he is using them nonetheless since it helps make something bigger, better, etc. Hyperboles, and thus exaggerations, can be humorous, because of the different analogies that they can create (see Norrick, 1993, 2003). In Clark's (1996, p. 143) view, hyperboles depend on "a kind of joint pretense in which speakers and addressees create a new layer of joint activity." Once again, just like in the case of sarcasm, a pretense space is built from the common ground shared by speakers. The pretense space is necessary in order to access the 'misrepresented truth' (Gibbs, 1994, p. 391) created by hyperbole.

The connection between hyperbole and humor (more particularly, irony) has been discussed in a number of research papers (Gibbs, 1994; Roberts & Kreuz, 1994; Kreuz & Roberts, 1995; McCarthy & Carter, 2004). For instance, Gibbs (1994)

analyzes hyperbole as a form of irony, while Kreuz and Roberts (1995) discuss the link between irony and hyperbole in their "nonveridicality." When speakers use tropes such as irony and hyperbole, they say something that they know to be untrue.

In the following, an example is presented that shows exaggeration as a way of maximizing a certain image, in a non-sarcastic way. It serves the role of adding a particular image/perspective to the situation in which the speakers find themselves. Then we discuss examples when exaggerations are used in interaction with sarcasm, in order to mock an interlocutor or a certain idea previously mentioned in the discourse. In this case, the perspective is intentionally modified and distorted because it targets someone or something specifically (the previous speaker or the previous speaker's ideas, for instance).

Consider example (101) below which presents an exaggeration, with no use of sarcasm. This instance is taken from *The Big Bang Theory*. In this scene, Sheldon is trying to make Leonard look better in Stephanie's (Leonard's girlfriend) eyes. When Leonard, while trying to open a jar, hurts himself and his finger starts bleeding, Sheldon attempts to save Leonard's 'reputation' and inflates his position (so as to distort Stephanie's perception of the event). Given the previous scene, and the background of the series with which the audience is already familiar, there is no sarcasm intended by Sheldon's analogy, only the attempt of emphasizing a different viewpoint of the context. The humorous effect comes from the incongruity between the two images implied by the situation and the speaker (Sheldon):

(101) Stephanie: Oh my God, are you okay?
Leonard: No, I'm...I'm bleeding.
Sheldon: Like a gladiator!

The analogy to a *gladiator* gives an entirely different meaning to the situation. Leonard, who hurt his finger, is compared to a gladiator, and his wound, although small and unimportant, becomes an image of bravery and strength. The incompatibility between hurting one's finger (not dangerous since it involves such a small part of the human body) and the image of a wounded gladiator is what ensures the humorous effect of the scene. Nonetheless, since Sheldon only intends to make Leonard look better and stronger in his girlfriend's eyes, he is not being sarcastic (i.e., he is not mocking him). He only tries to give a new and bigger perspective to the situation.

Consider also example (102) below, where the instances containing sarcasm and exaggeration build around metonymies which refer first to the Middle East

and then to punishments in the Middle East. In this scene, the two characters (House and Amber) fight over Dr. Wilson: Dr. House (Dr. Wilson's friend) and Amber (Dr. Wilson's girlfriend) try to reach an agreement in order for both of them to spend time with him.

(102) House: If you terminate the agreement, it's not going to bring peace in the Mid-East.
Amber: I'm not terminating the agreement. I'm amending the agreement. I'm adding penalty clauses.
House: Fine. Whoever violates it gets their finger cut off.

This example is rather complex, since it combines metaphors and metonymies from various frames. The metaphor *peace in the Mid-East* metonymically refers to the whole frame of Middle East, which is then used again by Dr. House when the expression *penalty clauses* triggers the punishment of cutting someone's finger off.

The metaphor *peace in the Mid-East* first represents an exaggeration from Dr. House because it implies an analogy with the idea of war in the Middle East. The disagreement between Amber and Dr. House is compared to a war,[50] and their agreement is meant to bring peace. The specific expression *peace in the Mid-East* refers to a specific historical event and to the political problems that the world currently faces. This is a well-known and a much-discussed event, and the fact that Dr. House mentions it creates more common ground for introducing the metonymy *whoever violates it gets their finger cut off*. This metonymy stands for the whole frame of PUNISHMENT, and it refers back to the Middle East, the idea introduced by Dr. House's first utterance. It serves the role of a reference-point construction (see section 4.2 above), referring to both frames: THE MIDDLE EAST and PENALTY. Exaggeration is thus created by means of referring/comparing their issue to the issues in the Middle East (war, cruel punishments, etc.). Such a small issue (their fight over who gets to spend time with Wilson) is compared to a big problem (such as war in the Middle East), allowing the humorous effect to be built on the clash between these two meanings. Sarcasm is thus created through means of mocking incongruity. By giving these huge proportions to their current issue, Dr. House highlights the non-seriousness of their problem. The metonymy of *having someone's finger cut off* as a punishment comes as a reply to Amber's suggestion of *penalty clauses*, which triggers the analogy to the cruel punishments in the Middle East.

50 See for instance the metaphor ARGUMENT IS WAR (Lakoff & Johnson, 1980).

The following example is taken from *House M.D.* and presents another instance where exaggeration interacts with sarcasm. In this scene, the team of doctors discusses a possible diagnosis for one of the patients. House's final remark is sarcastic, respecting the features of incongruity and targeting, typical of sarcasm:

(103) Kutner: Prednisone could cause Roid rage, which could cause hypertension, which results...
Taub: Roid rage after six hours?
House: At that rate, by sundown, he'll have eaten most of us.

This exaggeration presents a sarcastic hyperbole (*he'll have eaten most of us*) aimed at Kutner's suggestion of the medicine Prednisone. Sarcasm is presented in the form of reasoning (see section 4.2 above) because it is an inference that the speaker draws from the given situation. Similar to example (101) above, where the analogy between Leonard and a gladiator created the humorous exaggeration, this time it is by means of reasoning/inferencing that this effect is achieved. Through reasoning, we get to the basic form of a conditional construction that can be transcribed in the following:

If P,	then Q
If Prednisone causes Roid rage after six hours,	
→ If the symptoms advance so quickly	
→ If he is so enraged after six hours	then he will have eaten most of them by sundown.

In other words, if P is true, then Q is true as well. House here follows the same line of reasoning, mocking Kutner's diagnosis by means of sarcasm. The interlocutors and the audience at home will be able to infer the intended implication: the diagnosis proposed by Kutner is not correct because of the exaggerated scenario suggested by Dr. House. By using the suggestion made by Kutner, House exaggerates the perspective by calculating the effects of such a suggestion being true.

Consider also the example below, taken from *The Big Bang Theory*. Sarcasm is combined with exaggeration in the analogy to Christmas and the birth of Jesus Christ. The discussion is about Christmas traditions and, more particularly, Sheldon's stand on this:

(104) Sheldon: December 25, 1642, Julian calendar, Sir Isaac Newton is born. Jesus, on the other hand, was actually born in the summer. His birthday was moved to coincide with a traditional pagan holiday that

> celebrated the winter solstice with lit fires and slaughtered goats. Which, frankly, sounds like more fun than 12 hours of church with my mother followed by a fruitcake.

In this example, Sheldon targets his family's (more particularly, his mother's) religious values and traditions by using an analogy to link the past customs and the present ones existent in his family. The analogy contains on the one hand the *lit fires* and *the slaughtered goats* and on the other hand the *twelve hours of church* with Sheldon's mother *followed by a fruitcake*. Sheldon sarcastically suggests that the former elements would be *more fun* than the latter, which he had experienced as a child. Sarcasm thus contains the mockery toward these values and traditions shared by his mother and that he was forced to accept. Humor arises mainly from the incongruity between these two scenes. The gruesome spectacle of *slaughtered goats* is something Sheldon would have preferred to spending twelve hours in church with his mother. Note also the expression *more fun*, which emphasizes the boredom that these twelve hours of church meant for him. Instead of this, he would have found the gruesome spectacle of *slaughtered goats more fun* than staying in church with his mother. Both sarcasm and exaggeration are combined to give this effect and make the incongruity and the mockery possible. By comparing the situation to a gruesome event, the mockery of the traditions is made clearer to the audience.

In the corpus, exaggerations account for 90 instances, 28 of which are used sarcastically. Exaggeration also interacts with hyper-understanding and sexual humor, by intentionally misrepresenting a situation in order to create a humorous effect.

In the following section, the main concepts and implications of sarcasm are drawn for a better understanding of the meanings generated in interaction. The focus of attention falls on the idea of incongruity, briefly explained above (section 4.1.) in relation to irony. This time, the different processes that help build incongruity in sarcasm are explained in more length based on the examples presented in this chapter.

4.4 Sarcasm: Reviving incongruity

The examples present in the corpus clearly show that hearers (the audience included) have to access a pretense, non-serious space when interpreting these utterances. The humorous interpretation draws on the common ground shared between speakers and hearers (characters and audience). The speakers then manipulate the serious discourse space in order to add new meanings to the

context and surprise the hearers. The different interpretations and the different discourse spaces involved in the process of meaning are incompatible, and thus create what can be called 'sarcastic incongruity'.

In the following sections, we explain in further detail the process of building a pretense space on the shared ground between hearers and speakers, the process of meaning construction in sarcasm as well as the premises for 'sarcastic incongruity' from different linguistic perspectives.

4.4.1 Building a pretense space on common ground

In his layering model, Clark says the following about common ground:

> *p* is common ground to members of community C if and only if
> 1. every member of C has information that basis *b* holds
> 2. *b* indicates to every member of C that every member of C has information that b holds
> 3. *b* indicates to members of C that *p*
>
> (Clark, 1996, p. 94)

The sarcastic instances clearly build on common ground, which is not only shared between interlocutors in the television-series, but also by the audience at home watching the show (familiar already with the plot, the characters, the events, the story, etc.). The examples successfully create a humorous effect because the community C is aware of the information that the basis *b* holds. Figure 31 shows how sarcasm draws on the knowledge and the common ground between speakers.

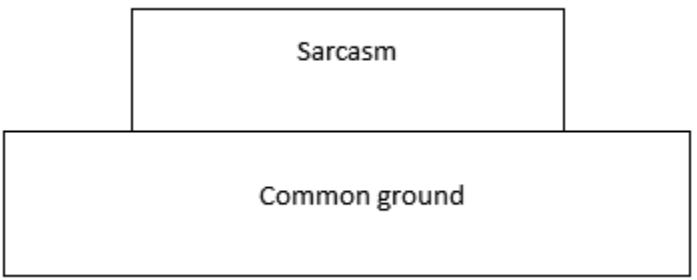

Fig. 31: Sarcasm based on Clark's (1996) layering model

Consider example (80) where House suggests *Immaculate Conception* to his patient. The hearers are able to retrieve the allusion to Christianity by means of intersubjective meaning coordination, exactly because this reference builds on the beliefs and information that the community C shares. Generally speaking, the religious foundations of Christianity are part of common knowledge. This common knowledge constitutes the basis *b* on which the sarcastic pretense space is built. In order to exploit metonymy and manipulate the given discourse space, which will surprise the hearer and ensure the humorous effect, such examples draw on common knowledge that will allow the hearer(s) to inferentially retrieve the path to follow. Figure 32 below shows how Layer 2 builds on the common ground between speakers in example (80). The serious elements in Layer 1 allow the non-serious elements to be added to the discourse space. The serious elements added by Sarah (i.e., no sex, her pregnancy) lead to the construction of the Layer 2, which included the non-serious elements of Immaculate Conception and the start of a religion. Layer 1 combines the elements added by Sarah (previous discourse) and also elements from the shared knowledge between interlocutors, namely the start of Christianity.

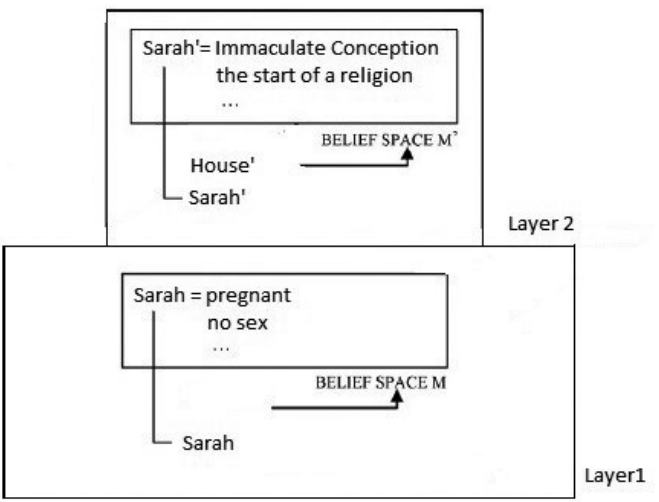

Fig. 32: Layering model for example (80)

It is clear then that a dichotomy between a serious and a non-serious discourse space is essential for a better understanding of the concept of sarcasm. Evidently,

the question that we ask ourselves is what happens when hearers fail to access this pretense space. This would lead to misunderstanding since the sarcastic meaning is not accessed. Verschueren (1999) comments on the role of common ground, highlighting the expectations it raises in speakers. According to Verschueren (1999, pp. 75-77), the speaker and the hearer inhabit different physical, social, and mental worlds (see also Verdonik, 2010):

> [T]here is overlap between those worlds, but even elements of common background from the overlapping areas may look different because the perspective always differs, at least slightly. Common ground, in other words, is almost never really common.
>
> (Verschueren, 1999, p. 77)

It is thus safe to assume that sometimes sarcasm is not accessed in a pretense space, but taken at face value. When this happens, the effect is still humorous for an audience or a third party who is able to access the pretense space accordingly. In example (105) below, sarcasm is misinterpreted because the speaker does not access the intended pretense space correspondingly. Penny here expects Sheldon to access a pretense space (and thus the sarcastic meaning of her utterance), which he nevertheless fails to do. Layer 2 is not accessed, and Sheldon takes her words seriously:

(105) Sheldon: Would you prefer to wait in our apartment?
Penny: No, Sheldon, I'd rather sit on this freezing cold floor sobbing like a three-year old.
Sheldon: Alright, then (turns to leave).

From Penny's perspective, sarcasm is not represented by a pretense space (i.e., Sheldon fails to access a non-serious space) and is thus interpreted at face value, in a serious discourse space. The result is still humorous, not for the two speakers engaged in conversation, but for witnesses to such a conversation (the audience, in this case) because they are able to make the link between the two separate layers and access both interpretations (the one intended by Penny and the one understood by Sheldon). The humorous effect comes from the clash between these two incompatible interpretations.

Ritchie (2006) presents a BEFORE and AFTER analysis that can be used to visualize such instances where humor comes from a clash of viewpoints between the speaker's intended interpretation and the hearer's actual interpretation (see Figure 33 below). From this perspective, humor is seen in a BEFORE-AFTER configuration that allows explaining the misunderstanding/clash between distinct interpretations given to the same message. In the BEFORE viewpoint interpretation,

there is only one possible reading that is to follow a speaker's words. The hearer's point of view (V_H) depends on the narrative world (V_N) which is formed by the characters in the space V_C. The event E is represented as a set-up situation (S_U) and the dotted lines are the links toward the interpretation (I) of that particular utterance. The AFTER model shows that a new interpretation has been adopted by the hearer. The reason for regarding this as a BEFORE-AFTER configuration is that a new element appears in the latter, mainly the punchline (PL) which builds the narrative event E_{PL}. In the BEFORE model, the lines between $E^{C}{}_{SU}$ and E_{SU} are a display of the hearer's expectation. The interpretation that the character gives to the event should be the same as the actual interpretation of the narrative world[51] [$I^{N}{}_{SU}$]. We observe that in the AFTER model, the dotted lines point to two ***different*** interpretations—$I^{C(1)}{}_{SU}$ and $I^{C(2)}{}_{SU}$—that were not expected in the BEFORE model.

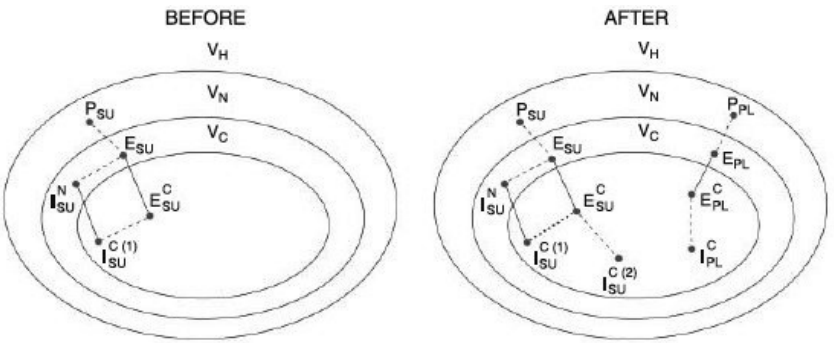

Fig. 33: Ritchie's (2006, p. 264) viewpoints

Brône (2008), who discusses Ritchie's viewpoint analysis regarding misunderstanding, notes that this "clash is between the interpretation the hearer would expect a story character to adopt (on the basis of (con)textual clues) and the interpretation the latter actually adopts" (Brône, 2008, p. 2039).

This viewpoint clash can best characterize the misinterpretation in example (105) above. Penny's words are easily interpreted as being sarcastic by an audience, and that is why only one $I^{C(1)}{}_{SU}$ would be expected from the part of the other character (Sheldon). Nonetheless, he fails to interpret this as such, and therefore stays on a serious discourse space (Layer 1), which adds a new interpretation ($I^{C(2)}{}_{SU}$) to the context.

51 Ritchie (2006, p. 262) explains that the solid line marks the counterpart relation.

Therefore, the importance of common ground for the creation as well as interpretation of humorous implications is fundamental. In Clark's (1996, p. 96) terms, "when [we] act on the basis of our common ground, we are in fact acting on our individual beliefs or assumptions about what is in our common ground." Consequently, when Penny utters *No, Sheldon, I'd rather sit on this freezing cold floor sobbing like a three-year old*, she assumes that Sheldon will interpret her words as being non-serious and sarcastic. She assumes he will be able to move to a pretense space and not consider her words at face value. Moreover, the audience will do the same, and expect Sheldon to move to a pretense space where he would grasp the sarcastic meaning of her words. His failure to do so is what generates the humorous effect, and not the sarcasm itself. Interestingly, if sarcasm supposes an incongruity between two layers of meaning (Layer 1 and Layer 2) and a switch to a Layer 2 in order to interpret the utterance from a different perspective, not making that switch and staying on a Layer 1 can also generate humor. This then depends solely on the hearers' expectations. In other words, humor can arise from a completely unexpected interpretation that is given to the message or it can arise from the failure to interpret sarcasm as such (generally, when sarcasm is as obvious as in example [105] above).

Consider also example (106) below, where the same character fails to interpret the interlocutor's sarcastic remark about his being a genius. The exchange is taken from *The Big Bang Theory* corpus where the same character (Sheldon) discusses with his sister (Missy) her unexpected visit. Instead of just answering "Yes" to his question, Missy replies using sarcasm and commenting on his being a genius, a sarcastic remark whose meaning Sheldon fails to grasp:

(106) Sheldon: Mom just sent you here to spy on me, didn't she?
Missy: I guess that's why they call you a genius.
Sheldon: They call me a genius because I am a genius.

Clark's layering model and structured meanings are relevant for this example as well. The sarcasm in Missy's words is easily understood in a pretense space where it becomes apparent that she is not being serious. The audience interprets this as sarcastic exaggeration, where one is a genius simply because they have realized something that was obvious enough for anyone to understand. Having thus understood that Missy was sent by their mother to inquire about Sheldon represents granting someone the status of *genius*. Nonetheless, Sheldon fails to grasp the sarcastic utterance and seems to focus on a serious space, where they call him a genius because he is, in fact, a genius. Once again, the analysis of sarcasm at face value results in creating a humorous effect for an audience that already accessed

the two layers accordingly. Humor arises in such examples from a common expectation that is then subverted by a new meaning.

Let us take into consideration a final example, taken from *The Big Bang Theory* as well, where Leonard's sarcasm is misread (once again) by Sheldon. This exchange presents Sheldon coming to Leonard's room to comfort him because the latter is not feeling well after a conversation with his mother. The entire exchange is given below since it builds the sarcasm in Leonard's utterance:

(107) Leonard: Why are you here?
Sheldon: To comfort you, of course.
[...]
Sheldon: Leonard, what you're experiencing is a classic Jungian crisis in which the aging individual mourns the loss of the never-to-be-realized ideal family unit.
Leonard: Thank you, that's very comforting.
Sheldon: That's not the comforting part.
Leonard: It's not?
Sheldon: No. The comforting part is that the Germans have a term for what you're feeling. Weltschmerz. It means the depression that arises from comparing the world as it is to a hypothetical, idealized world.
Leonard: You're right, I do feel better.
Sheldon: Well, the Germans have always been a comforting people.

Leonard's sarcasm is an effect of Sheldon's words about the German idea of *Weltschmerz* and the long speech about what this notion means. Given that Sheldon came to see Leonard with the intention of comforting him, this is an idea that is repeated by the two characters throughout the exchange (the adjective *comforting* is used four times in [107]). Leonard's last reply *You're right, I do feel better* is sarcastic, since Leonard uses the opposite of what he really thinks/feels in order to mock Sheldon. He also emphasizes this utterance with the use of the auxiliary *do*. The audience will therefore access this utterance in a non-serious space, following Sheldon's explanation of the notion of *Weltschmerz*, which is no way comforting and cannot make someone feel better. The philosophical explanation given by Sheldon is being mocked by Leonard in his last reply. Nonetheless, the humorous effect also arises from the misinterpretation of this utterance by Sheldon, who thinks Leonard is actually impressed by this German notion he presented. His perspective is thus shifted to the Germans and not to a non-serious space where Leonard means the opposite of what he is saying. The expectation of the hearers to access a non-serious space is then switched to this new

interpretation where Sheldon takes Leonard's words at face value. So the humorous effect does not come only from Leonard's mockery toward Sheldon but also from Sheldon's unawareness of a Layer 2.

Such instances (as [105], [106], and [107] above) build on the speaker's expectation of common ground with the interlocutor. When using sarcasm, it is safe to assume that one will expect their message to be interpreted in a pretense space. In such cases, as discussed earlier (section 4.2), humor arises from inappropriate and surprising interpretations that the message implies. However, a humorous interpretation can also follow the misinterpretation of sarcasm, as shown in the examples presented above. This also draws on common ground, a Layer 1. It is the incongruity between the two layers of meaning that makes humor possible. The interpretation of sarcasm happens on Layer 2, and the audience will be surprised by the fact that the hearer stays on Layer 1. Thus they have a perspective on the whole situation, accessing all layers of meaning and seeing the viewpoints of the different speakers.

4.4.2 Meaning construction

How does the incompatibility between different readings allow the construction of sarcastic meanings? Given all the rich implications and meanings that it generates, we argue that it is a fundamental means of all types of meaning construction. Radden *et al.* (2007, p. 3) define meaning construction as "an on-line mental activity whereby speech participants create meanings in every communicative act on the basis of underspecified linguistic units." They give a wide range of examples of meaning construction in daily linguistic structures, generated by world knowledge and experience of speakers. For instance, they quote Posner (1986) and the attribution of adjectives in expressions such as *a small precious stone* and *a precious small stone*. Depending on the order of these adjectives around the noun head, these two expressions generate different implications (i.e., the first expression will emphasize the importance of the size of the stone—a small gemstone, e.g., a ruby, a diamond, etc.; the latter highlights its worth/value—it represents a small stone that is precious to the speaker for whatever reason, e.g., sentimental). The order of these adjectives in the linguistic unit will make certain elements salient to the speaker (the adjective *small* is the most salient one in the first expression, while the adjective *precious* is more salient in the latter).

Surely, as underlined by Radden *et al.* (2007), underspecification[52] plays a fundamental role because it allows speakers to build new meanings and implications, and thus generate a pretense space:

> underspecification is especially relevant for the interpretation of linguistic material. We believe that each utterance is underspecified in the sense that it cannot possibly express all aspects that are relevant to its full interpretation.
>
> (Radden *et al.*, 2007, p. 2)

Consider for example (69) where the adjective *dangerous* is used by House to convey an incompatible/opposite meaning. By sarcastically pointing out the so-called proximity between knees and vocal chords, Dr. House calls on the common ground and mutual knowledge of hearers/audience. The incompatibility between what they know to be true (i.e., knees are not close to vocal chords) and what is said by Dr. House (i.e., *operating so close to the vocal chords*) creates the sarcastic meaning. Similarly, the repetitive statements discussed above (example [72] *her grandmother died*, as well as [73] with *sorry, I was sick. And my team needed an emergency consult*) manage to make the hearers/audience infer the sarcastic meanings by simple repetition. The same utterances have incompatible interpretations, depending on $Speaker_1$ and $Speaker_2$. The same applies to cases of explicitation, where the speaker's incongruous meanings arise from what he says and what he implies (e.g., [75] above, with Dr. House's rhetorical questions *What are you saying? That evolution is wrong? Where do you think we are, 21st century America?*). Moreover, as noted by Radden *et al.* (2007, p. 8), metonymy and metaphor constitute "semantically deviant usages of language". With metaphor and metonymy[53], the hearers have to access distinct readings by means of inferencing and meaning construction. Compare (80) and (81) where the metonymic expressions stand as reference-point structures for the frames that are called to mind (i.e., Christianity, and, in the second case, Sheldon's character).

Generally, given the common ground that interlocutors share (this also applies to the audience at home watching the show), the speakers must be confident enough of the implications and meanings they intend to convey and, accordingly, they will have certain expectations from the part of the hearers. Thus, they use the elements in the linguistic context in order to generate certain humorous

52 De Mey (2003) discusses the role of ambiguity, and more specifically, the creativity of certain individuals to impose dual meanings not only on their own words, but those of others, as well (see also Veale *et al.* 2013).

53 See also Panther (2005), Gibbs (2007), and Ruiz de Mendoza and Mairal Usón (2007) for meaning construction in metonymy.

implications. It is possible to switch to a pretense space using elements from the actual discourse environment. In interactional humor, an essential role is played by all interlocutors, because they build up the discourse environment, and each one of them adds new information that speakers can use for a sarcastic effect.

Moreover, in sarcasm, speakers play on the interlocutors' intended meanings. Consider again example (80) where Sarah, after telling House that she is pregnant without having had any sexual relations, asks *Um, what do I do?* The ambiguity in her question (referring most probably to her situation) is then exploited by Dr. House for the sarcastic effect of the message (*It's obvious. Start a religion*). The frame of CHRISTIANITY is still kept in the discourse to add to the sarcastic interpretation of this particular context. However, it is by manipulating the ambiguity/underspecification in her question that this new meaning is added to the utterance.

Consider also an example such as (108) below, taken from *House M.D.*, where the frame of FRIENDS is shifted to that of LOVERS. Wilson is staying with House as a consequence of his divorce:

(108) House: This isn't gonna work.
Wilson: What?
House: House: You. Staying here.
Wilson: You're kicking me out? After one night?
House: You think we should try counseling first?

The frame of FRIENDS is changed to the frame of LOVERS, and this new meaning is possible because of how Wilson phrased his questions. The elements in Wilson's questions (i.e., *to kick out*, *one night*) make this change possible because House exploits them in order to add new layers of meaning to the discourse. Hence, after Wilson seriously asks about being kicked out after one night, House takes advantage of that and the whole perspective is changed: from friends, House shows them as lovers who *should try counseling first*. This sarcastic perspective can be seen from different angles: it could be targeted towards both of them and their close relationship (thus including them both in the mockery); it can also be seen as a reference to Wilson's recent divorce and considered as a pattern in his life (hence, the mockery is only directed toward Wilson and his failed relationships). All these rich implications are possible because House manipulates the elements in Wilson's phrasing. Although a salient meaning is accessible, he chooses to switch to another meaning and add new layers to the context. The humorous effect comes from these surprising inferences that House uses.

Hence, sarcasm builds on incompatibility and underspecification. Probably the best way to sum up this process is by using Fauconnier's (1999, p. 96) words with regard to meaning construction:

> Language is only the tip of a spectacular cognitive iceberg, and when we engage in any language activity, be it mundane or artistically creative, we draw unconsciously on vast cognitive resources, call up innumerable models and frames, set up multiple connections, coordinate large arrays of information, and engage in creative mappings, transfers and elaborations. This is what language is about and what language is for.

Sarcasm behaves much in the same way, contributing to the construction of meaning in discourse. When sarcasm is used between the speakers in the television series presented above, they call on the hearers' common ground and general knowledge of the world. They exploit the discourse space in such a way that they expect a clash to happen between certain expectations and reality, between the discourse base space and the pretense space, the serious and the non-serious interpretation of their words and utterances.

4.4.3 Sarcastic incongruity from different perspectives

As discussed in Chapter 2, and again when defining the concept of sarcasm there is an idea of incongruity that seems to emerge from humor in general, and sarcasm in particular. Incongruity, as defined by Raskin (1985) when discussing the idea of script-opposition, comes from the mismatch or incompatibility between two (or more) interpretations of the same utterance. In sarcasm, as seen above, the idea of opposition between what a speaker actually means and what they say or between an expected reaction and the actual reaction is what defines the whole concept of sarcasm.

Furthermore, if we separate meaning in the traditional sense (semantic, pragmatic, etc.),[54] we can find this incongruity at different 'levels', which can as such be viewed from the perspective of semantics, pragmatics, and also cognitive phenomena.[55]

From a semantic perspective, we will adopt Raskin's (1985) theory of script-opposition in order to show how different meanings are built in discourse. From

54 However, instead of separating the different perspectives as above, we can see all these phenomena and processes from the perspective of cognitive semantics, where meaning is dynamic and context-sensitive.

55 See also Tabacaru (2015) on different perspectives in sarcasm, among others.

his point of view, humor arises from two different readings that overlap. This interpretation can be at the core of the examples discussed above, where sarcasm means the opposite of what one is saying. The word *dangerous* in example (69) does not really mean 'dangerous', and the new interpretation is given by the fact that it is *so close to the vocal cords*. In example (72), repeating the same words (*her grandmother died*) as the previous speaker changes the meaning of the message as a whole. The two interpretations present then an incompatibility of which the audience is aware. When the same form is repeated, the hearer is able to shift from one reading to the other and access the humorous interpretation. This semantic incompatibility accounts for many examples in sarcasm, as discussed above. Humor is underlined by this incongruity and the mismatch between two (or more) different readings, ideas, interpretations, perspectives, etc. This clash can focus on only one element of the utterance (as seen in examples such as [69] or [70] above) or on longer chunks of discourse (as seen in examples such as [72] or [73] above).

From a pragmatic perspective, the speaker manipulates the discourse space and hearers' expectations in order to create certain inferences. The new interpretations implied by sarcasm surprise the hearers. For instance, metonymy could be explained in this way. Pragmatic inferencing lies at the center of this semantic mechanism in sarcasm, where hearers infer whole paths in the frame in order to reach a humorous meaning. The prototypical view of metonymy is thus exploited from this perspective, and speakers 'trick' the hearers into accessing less salient, non-prototypical metonymic meanings. In example (80), the speaker creates metonymic inferences to religion (and more specifically to Christianity) by connecting her pregnancy to *Immaculate Conception* and, afterwards, to the start of a religion. The same happens in example (81), where an insulting adjective such as *dumb-ass* is used for the PART-WHOLE metonymy in order to describe Sheldon. Consider also example (82) where the speaker infers that the other person is Canadian, solely because he is nice. Once again, less salient elements are used in order to manipulate the hearers into accessing a humorous interpretation. On a more general level, in sarcasm, speakers intentionally create incompatible meanings in order to shift the discourse space and hearers' expectations. Consider also examples of shift of focus, where the focus of attention is switched intentionally in order to achieve a humorous effect (examples [86], [87], and [88]). This is what Yus (2003, p. 1308) called "mind-reading ability" from the part of the speakers using humor, because they are able to infer beforehand the mental processes the hearers are likely to go through in order to get to the intended implications. Consequently, speakers who want to use humor will manipulate these expectations for a different effect.

Cognitive phenomena involve structured layers of meanings that build one on top of the other, from what the previous context has created and the common ground between the speakers (and the audience, in this case). When a non-serious layer is built on a serious layer, elements from both layers interact and make the switch between them possible. Cognitive processes also involve different mental spaces (a reality space and a pretense space) on which the different interpretations can be seen and accessed. Humorous utterances can be explained using structured cognitive layers or mental space phenomena, as convincingly explained by Brône (2008). We follow Brône's account of humor in order to explain sarcastic utterances. The clash here arises precisely between the spaces that the hearers create and access in order to understand the humorous interpretation(s). For instance, in example (72), where Beverley repeats Howard's words *her grandmother died*, she switches the serious space with a non-serious/pretense space, where Howard's words are not to be taken at face value. In example (83), the metaphorical *scent of arrogance* or the transaction of *buying religion* in (84) both take place in a non-serious space (Layer 2), where these actions are interpreted as possible. According to Coulson (2005a, p. 108), "when speakers produce language, listeners use that linguistic input along with background and contextual knowledge to set up simple cognitive models in mental spaces." Hence, people partition their knowledge into different mental spaces, "each structured by cognitive models from a relevant domain" (Coulson, 2005a, p. 108). In relation to humor, this blending has been applied in a number of works (Coulson, 2001, 2005a, 2005b; Bergen, 2003). Moreover, Coulson (2005b) highlights the fundamental role of mental space theory in the processing of sarcasm as not just simple opposition between what is said and what is meant since it captures "the extent to which sarcastic utterances draw on our ability to understand mappings between normative and non-normative scenarios." Consequently, in order to understand sarcasm, the human mind has to create and access different mental spaces.

In other words, the concept of incompatibility between these meanings is typical of sarcasm and can be accounted for from all three linguistic perspectives. Incongruity is at the center of the concept of sarcasm, with a speaker intentionally implying a clash between different readings. The speakers thus say something that they do not mean to be interpreted at face value and it is this clash that will give rise to humorous effects. As Koestler notes (1964, pp. 91-92):

> To cause surprise the humorist must have a modicum of originality—the ability to break away from the stereotyped routines of thought. Caricaturist, satirist, the writer of nonsense-humor, and even the expert tickler, each operates on more than one plane. Whether his purpose is to convey a social message, or merely to entertain, he must provide mental jolts,

> caused by *the collision of incompatible matrices*. To any given situation or subject he must conjure up an appropriate—or appropriately inappropriate—intruder which will provide the jolt. (emphasis added)

In Koestler's view, "the collision of incompatible matrices" seems to be at the core of humorous meanings. A first reading is accessed by the hearer that is afterward overtaken by another reading. The surprise will create the humorous effect. This incongruity also triggers the humorous effects of sarcasm because it is placed at the core of meanings implied by speakers.

4.5 Conclusion

In this chapter, we have explored the implications and meanings generated by sarcasm. Firstly, the concept of sarcasm has been defined as expressing an incongruity of which speakers and hearers are well aware. This incongruity can be semantic (the meaning of words), pragmatic (concerning the discourse space and expectations from the hearers), and/or cognitive in nature (generating different mental spaces in order to be understood). The incongruity is generally accompanied by the existence of a target that the speaker mocks.

Secondly, we have discussed the various means and meanings through which sarcasm is achieved, from simple incongruous implications to more complex phenomena that can be, for instance, metonymic or metaphoric in nature. This taxonomy is based on the results in the corpus. The linguistic mechanisms presented here allow creating sarcastic utterances through means of pragmatic inferencing, generating complex frames in the minds of the hearers.

Thirdly, we presented the other humor types interacting with sarcasm, which can be seen as either foreground or background tones. The boundaries between these humor types are blurred enough that a clear dissociation from sarcasm seems impossible. We showed that when sarcasm interacts with other humor types, the semantic mechanisms typical of sarcasm are kept, but they are intertwined with other phenomena (such as hyperboles in the case of exaggerations).

Finally, we presented a general conclusion for the concept of sarcasm, based on the semantic, pragmatic, and cognitive phenomena at play in such utterances. Layering plays a central role in the creation and understanding of such utterances, since it presents the building of pretense utterances on the common ground that interlocutors (and the audience) share. Both parties are well aware of the existence of a pretense space (different from the reality space). In cases where this second layer is not attained (see examples [30] and [31]), this results in misunderstanding. In such contexts, the misunderstandings are still

humorous for the hearers who reached the pretense space intended by sarcastic implications. We also argued in favor of meaning construction in sarcasm, based on the rich meanings and implications generated by incongruities and clashes of meanings. Moreover, sarcastic incongruity has an essential role for the creation of layers in sarcasm. It generally creates a clash between different semantic and pragmatic meanings and implications, which allows mapping the incompatible interpretations accordingly.

5 Multimodality and sarcasm: Reasons to raise a few eyebrows

As noted by Davies (2008, pp. 382-383), deciding between the meanings that utterances can have involves including all the information about the given context: the teller, the audience, the tone, etc. Such view necessitates that one adopt a multimodal approach to language use, a perspective shared by an increasing number of studies (Kendon, 1980; McNeill, 1985, 2008; Krauss *et al.*, 2000; Calbris, 2008; Cienki, 2008; Mittelberg, 2008; and many others). As the study shows, it is warranted that these elements be included in the analysis of humor as well (see also Gerhardt 2009). Interest in the field of humor is still growing and there are only a few analyses on the role multimodality plays in relation to humorous messages. In this chapter, we address the issue of multimodal markers of humor. The different gestures used with humor have been annotated which allow a more fine-grained analysis on humor understanding and perception.

The chapter is organized as follows. First (Section 5.1), the background assumptions regarding the gestures that are discussed are presented. In the next two sections, we present a more detailed analysis of the two categories of gestures that occur most frequently in the data: facial expressions (raised eyebrows and frowning) and head movements (head tilts and head nods). For each of the gestures analyzed, we first present a qualitative analysis, followed by a quantitative analysis, laying out the occurrence of the gesture in question with the different types of humor, which allows us to evaluate the "humor profile" of each gesture, i.e. the degree with which they occur in certain types of humorous exchanges. Taking this question to a more general level, we present a contrastive sample that was carried out in order to compare the occurrence of these gestures with humorous and with non-humorous exchanges. This allows us to establish to what extent these gestures are more typical for humorous utterances, or simply the outcome of more general communicative strategies. The last section of the chapter (Section 5.5) repositions this question in a more general perspective, discussing whether these gestures are to be considered as pragmatic or semantic elements.

5.1 Integrating gestures to the research on humor

Two categories of gestures frequently co-occur with humor (but that are often not considered in gesture studies): facial expressions (raised eyebrows and frowning) and movements of the head (head tilts and head nods). Several cases will be analyzed, instances where the gesture is actually the trigger for the humorous

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interpretation (hence the term "gestural trigger") when they co-occur with single words, bigger segments, or have no verbal counterpart at all. The extent of the gestural trigger varies: it can sometimes align with a single word or with bigger segments.

5.1.1 The meaning of facial expressions and head movements

In psychology, Ekman (1979) discusses how eyebrow movements can be linked to certain human emotions which he represents as in Figure 34 below. These eyebrow movements include both raising eyebrows and frowning. The deviations from the baseline (the neutral face as represented by the first figure on the top left) concern both eyebrow movement and forehead movement, and Ekman associates the different movements to particular emotions—such as anger, fear, surprise, etc. (see also Darwin, 1872; Ekman & Friesen, 2003). These eyebrow movements are a result of the contraction of specific muscles and, according to Ekman, they represent expressions of human emotion.[56] As such, expressions such as 1+2 would reveal surprise and astonishment, whereas an expression such as 1+2+4 would reveal fear. The expression 1+4 reflects sadness, while 2+4 is a sign of rage:

56 Darwin (1872/1998) gathered data from speakers in different countries and analyzed the results regarding their expressions. Ekman, too, travelled around different countries, asking participants to describe people's emotions in a selection of photos using certain words. He thus showed that there is similarity between facial expressions and emotions across cultures. (Ekman & Oster, 1979; Darwin & Ekman, 1998). This led to the formulation of the principle of the universality of emotions.

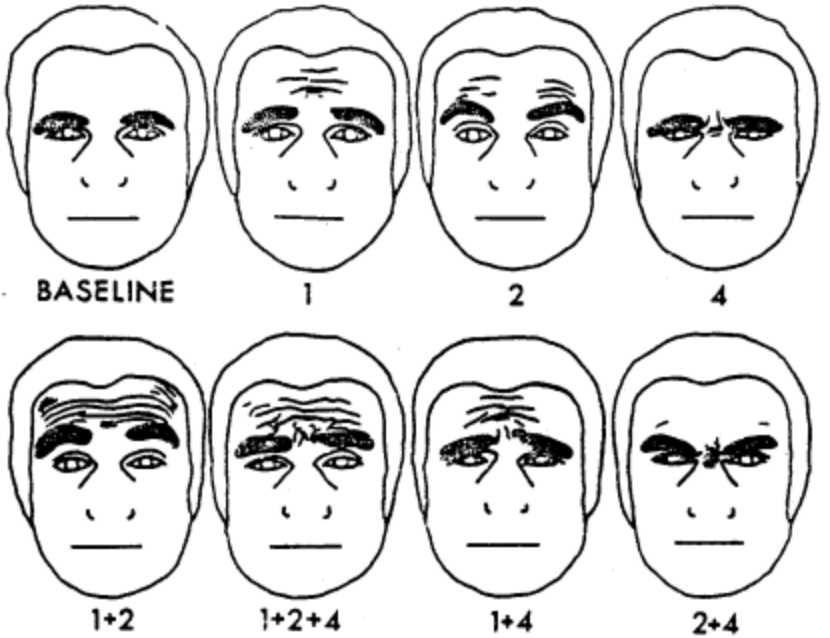

Fig. 34: Eyebrow movement according to Ekman (1979, p. 174)

Moreover, Ekman characterizes eyebrow movements as *underliners* (1979, p. 184) that provide emphasis for a given context. Similar to vocal cues, they would indicate that a word is important (Krahmer & Swerts, 2007). Eyebrow movements thus have a conversational role for the speaker (e.g., they underline, or punctuate a question). Ekman further notes:

> The combination 1+2 will be associated with positive rather than negative emotions, but could be a surprise or interest signal. It will also be confused with conversational signals that employ this action (questioning, doubting, greeting, emphasizing).
>
> (Ekman, 1979, p. 182)

Bouvet (1996) also notes the role of raised eyebrows in sign language as markers of a certain segment in the sentence on which the whole interpretation depends. This means that speakers intentionally use this gesture in order to alert the hearers of a certain element in their discourse that bears specific importance. Regarding frowning, the research up to now does not provide sufficient evidence on its role in reading human emotions. On this subject, Ekman (2001) notes:

> Charles Darwin in his book The Expression of Emotion in Man and Animals called the corrugator[57] the 'muscle of difficulty.' Darwin was quite correct: frowning occurs with many kinds of difficulty, mental or physical. People who lift something very heavy will frown when doing so, as will people who are having a difficult time remembering something or figuring out the answer to a difficult mental task. Frowning is shown during concentration, perplexity, and determination to accomplish a difficult task. Darwin noted that lowering the brow provides a natural sunshade, and indeed people do frown when they are in bright sunlight without sunglasses.

Apart from its role in showing a person's physical effort, frowning also plays a part in understanding certain emotions, such as difficulty (finding an answer), concentration, perplexity, and determination. He further notes:

> When people frown, they are often perceived by others to be feeling unpleasant, resentful, or angry, although this is often not the case. This interpretation may occur because the frown is part of the anger expression, which also typically involves glaring eyes and tense lips.

Frowning thus appears to be associated with negative emotions, since it expresses a person's anger. On this topic, Darwin (1998) notes that, following his research regarding emotions, people of all races frown when they are perplexed or puzzled, and this facial expression also comes as an expression of thought. In psychology, facial expressions are seen as signaling internal affective states; in interaction, frowning is specifically analyzed as withdrawing approval and expressing hostility (Kraut & Johnston, 1979; Arndt & Janney, 1987). Moreover, eyebrow movements as well as head movements (more particularly, head nods) have been argued to function as beats (Hadar *et al.*, 1983; Pelachaud *et al.*, 1996; Krahmer & Swerts, 2007). Beats have been defined as gestures where the hand moves along with the speech (Kendon, 1980; McNeill, 1992).

In contrast to raised eyebrows and frowning, head movements have seldom been analyzed in semantic terms or for the role they play in discourse. Head nods generally mark agreement from the part of the speaker (Lee & Marsella, 2010) or are used as beats. The discussion below of the functions these gestures have in humorous discourse thus provides an innovative contribution to both gesture and humor research.

57 The corrugator is a small, narrow, pyramidal muscle close to the eye which, by moving up and down, causes wrinkles in the forehead.

5.1.2 Defining gestural triggers in humor

As observed by Rockwell (2000), gestures and/or specific intonation are often used by speakers to either highlight chunks of their speech or in order to convey a certain meaning.

Rockwell (2001) and later, Attardo *et al.* (2013) make the link between certain facial expressions and the use of sarcasm. They note the use of rolling eyes, rapid blinking, and grimacing to inform the listener(s) that the meaning is sarcastic/ironic. Attardo (2003) mentions the importance of laughter not as a reaction to humor, but as a marker on the part of the speakers to signal a humorous intention.

Unfortunately, the existing research does not address the role eyebrow movement plays in the creation/understanding of humor. The research so far has focused on different multimodal elements in humor—such as prosody (Rockwell, 2000; Pickering *et al.*, 2009; Archakis *et al.*, 2010), pauses (Pickering *et al.*, 2009, Attardo & Pickering, 2011), or laughter/smiling (Attardo *et al.*, 2013), but Attardo *et al.*'s (2013) findings generally indicate the lack of research in this domain:

> it is possible to find examples of humor accompanied by prosodic features associated with saliency, and it is possible to find several examples of humor preceded by significant pauses, and while it is also possible to find many examples of humor followed and/or preceded by laughter, we cannot claim that any of these features, with the exception of smiling, is a marker of humor.
>
> (Attardo *et al.* 2013, p. 412)

Frowning, on the other hand, has been associated with sarcasm. Arndt and Janney (1987, p. 140) note that if the frown is intentional, the hearers can interpret it as "a sign that his partner disagrees or disapproves of what has just been said, or that he is being critical, unfriendly, *sarcastic*, or condescending" (emphasis added). On the contrary, a case where frowning is not intentional may be considered, as mentioned above, a sign of difficulty or concentration. The difference is determined by the intention of the speaker. Arndt and Janney also explain the role of frowning using Figure 35 below. The role of frowning can be either difficulty ('cognitive effort' in Arndt & Janney's terms), such as described by Ekman above, or for humorous purposes. When used for humorous purposes, Arndt and Janney perceive frowning as a signal of withholding or withdrawing approval, which would mark the clash between the serious and the non-serious interpretations, resulting in an ironic reading.

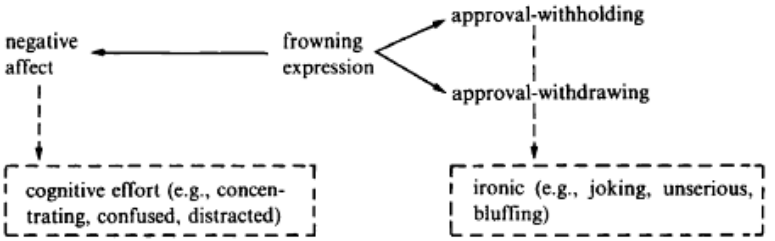

Fig. 35: Arndt and Janney's (1987, p. 299) alternatives to frowning

The most frequent gestures in the corpus of humorous exchanges are facial expressions (33.0% raised eyebrows and 14.0% frowning) and movements of the head (19.5% head nods and 17.1% head tilts). Although other elements mentioned above, such as pauses and smiling, also occur in the study, they do not seem to create a pattern for humorous interpretations. They appear sometimes to mark the humorous message (i.e., in humorous contexts), but are not used frequently enough to emphasize the switch to a pretense space (for instance, smiling is used in 1.4% of the data). Consider example (109) below, taken from *House M.D.*, where smiling marks the sarcastic meaning intended by House. In this exchange, the new management in the hospital imposes certain conditions and changes to the current state of affairs (smiling aligns with the underlined text). As shown in Figures 36 and 37, House smiles several times when saying this utterance, so as to mark the non-seriousness of his words. Following Attardo *et al.*'s (2013) claims, smiling marks the humorous interpretation of his utterance. Smiling does not only occur afterwards, but marks certain verbal and non-verbal elements (the pause between House's two utterances, for instance) to trigger the humorous effect of the message.

(109) Vogler: Oh, and, by the way, I need you to give a speech at the National Cardiology Conference. Uhm…Next week.
House: I don't <u>do</u> speeches. I am sh<u>y.</u>

Fig. 36: House saying *do speeches*

Fig. 37: Smiling in example (109) while uttering *[sh]y* (middle)

House seems amused by the reason he gives not to do the speech he is asked to do. In the first frame (Figure 36), he smiles slightly when uttering the verb *do*, which becomes more obvious at the end of his utterance, after having used shyness as an excuse. He smiles at the end of the adjective *shy* and continues to do so after having finished his utterance. Smiling is also used just before uttering *I am shy*. Humor is easily accessed from the common ground which, at this stage, has become well-established in the series, and it is generally known that House is not a shy person, but rather the opposite. Interestingly, other facial expressions are used, such as raised eyebrows (in Figure 36, and the first frame in Figure 37) and a slight frowning (Figure 37). In Figure 36, when uttering the noun *speeches*, House also tilts his head; this is also a frequently used gesture in humorous utterances.

The gestures that co-occur with humor and thus contribute to meaning construction will be referred to as *gestural triggers*. A gestural trigger, a term coined by Tabacaru and Lemmens (2014), is a gesture that guides the hearer to the interpretation of an utterance as humorous. A gestural trigger occurs on the core humorous part of an utterance, and alerts the hearers to the humorous interpretation of it. In the present corpus, facial expressions and head movements are the most frequent gestural triggers. Although they combine in numerous examples, as was also the case above, they will be discussed separately for better insight in the role they play in humorous exchanges.

Table 9 below gives the frequency of occurrence of the gestures that will be discussed in this chapter. For the two facial expressions mentioned above, the data contains 498 occurrences of raised eyebrows, which represents 33.0% of the total number of gestures in the data set of humorous exchanges and 212 occurrences of frowning, representing 14.0% of the gesture data. With 259 occurrences, head tilts account for 17.1% of the total number of gestures in the corpus and head nods constitute 19.5% of the data (294 occurrences).

Tab. 9: Facial expressions and head movements

Gesture	Number of occurrences	Estimated percentage in the corpus
Raised eyebrows	498	33.0%
Frowning	212	14.0%
Head tilts	259	17.1%
Head nods	294	19.5%

In other words, taken together, facial expressions occur much more frequently than head movements, which also explains why we start with these in the more detailed discussion below. Recall that for each gesture, a qualitative analysis is presented, followed by a quantitative overview of its occurrences with the different humor types.

5.2 Facial expressions as gestural triggers in humor

The most frequently used facial expressions are raised eyebrows and frowning. As part of the facial display of speakers, they play a part in the interpretation of the humorous instance. However, sometimes other gestures were used by the

speaker (such as head tilts, nods, frowns, gaze, or even shrugs). In some frames, it was even difficult to annotate the gestural focus/attitude since the camera would not necessarily follow the speaker or the speaker would even be too far for a clear view. These results show a clear pattern of the means the speaker exploits in order to alert the viewers of the intended (humorous) reading of their utterances. Compared to all the other gesture annotations in the corpus, raised eyebrows appear to be the most frequently used facial expression in humorous messages. Their functions are illustrated below.

5.2.1 Raised eyebrows

Raised eyebrows occur recurrently with different humor types and on certain elements of the speakers' utterance. By underlining these elements in this way, the viewers' attention is shifted to certain parts of the utterance that trigger the switch to the non-serious interpretation of their message.

Consider for instance example (110) below, an example of hyper-understanding, taken from *The Big Bang Theory*, where Sheldon raises his eyebrows when first repeating Stephanie's words and then adding hyper-understanding to the discourse. The humorous interpretation is triggered by his use of raised eyebrows (place of occurrence is underlined in the text). The video stills in Figures 38 and 39 below show Sheldon's use of raised eyebrows. Compare the baseline (the neutral face in the first frame) to the other frames where raised eyebrows occur.

(110) Sheldon: A little mishap while I was building my own cat scanner.
Stephanie: I'm sorry; you tried to build your own cat scanner?
Sheldon: <u>I didn't try, I succeeded.</u>

Hyper-understanding occurs here by reversing Stephanie's interpretation of the utterance. The verb *try* is repeated from her utterance, and its meaning reversed to the successful achievement of Sheldon's building his own cat scanner. Sheldon thus makes explicit not his attempt to build a cat scanner, but his accomplishment. Hyper-understanding (Veale *et al.*, 2006; Brône, 2008), as previously stated, means trumping the previous speaker's intended interpretation.

Raised eyebrows are maintained in this example in the whole process of hyper-understanding (compare with example [111] below). Sheldon raises his eyebrows when repeating Stephanie's utterance (*I didn't try*), which triggers a different interpretation to what she had previously asked (*you tried to build your own cat scanner?*). He keeps his eyebrows raised when uttering the new meaning (*I*

succeeded), which gives the humorous interpretation to his utterance. The viewers are thus alerted from the beginning of his utterance, when the repetition occurs, that a new meaning is about to be given to the discourse. The discourse base space builds on Stephanie's implication that Sheldon tried something very unlikely, to build a cat scanner (in reply to Sheldon's claim that he was *building his own cat scanner*). This implication is drawn from common knowledge and salience: a cat scanner is not something an individual alone would possibly be able to build. Stephanie's implication is then switched to a pretense space that highlights the difference between trying and actually achieving to build a cat scanner.

Fig. 38: Neutral face for example (110)

Fig. 39: Raised eyebrows with *I didn't try* (left) and *I succeeded* (right)

Just before uttering his speech, Sheldon's face is neutral (Figure 38), with no use of raised eyebrows, which occur only when he starts uttering what trumps Stephanie's interpretation of his initial words. Figure 39 shows Sheldon's raised eyebrows when hyper-understanding takes place.

The example below is also a case of hyper-understanding; in this situation, however, the raised eyebrows occur only when the new interpretation is added to the context and not when repeating the previous speaker's words, as above. In this scene, we see Sheldon working while his sister (whom he does not often see) is talking to his friends on the couch. The exchange takes place between Penny, who is curious in relation to his indifference towards his sister's visit, and Sheldon (see also Tabacaru & Lemmens, 2014):

(111) Penny: Sheldon, why are you ignoring your sister?
Sheldon: I'm not ignoring my sister; I'm ignoring all of you.

Humor arises here from the structural parallelism between Penny's utterance and Sheldon's. The repetition of Penny's words *ignoring your sister* represents the discourse base space that allows this humorous instance to be created. Sheldon reverses this interpretation by explicitly stating that he is not ignoring his sister, he is *ignoring all of* them. The first interpretation stated by Penny and which focuses on Sheldon's sister specifically is trumped by a new interpretation that includes all his friends. For this to happen, Sheldon takes advantage of Penny's choice of words (more particularly, the construction V+NP) and shifts its meaning by replacing the direct object to include all his friends.

Interestingly, raised eyebrows do not occur with the entire utterance, but only when Sheldon adds the new interpretation (*ignoring all of you*). This would be consistent with our claim that raised eyebrows play a role in triggering the humorous interpretation and contributing to meaning construction, since it only happens when Sheldon adds the new meaning (i.e., the new direct object) to the discourse. The gestural trigger thus falls on the central humorous part of the speech, in this case, what Sheldon adds to the discourse.

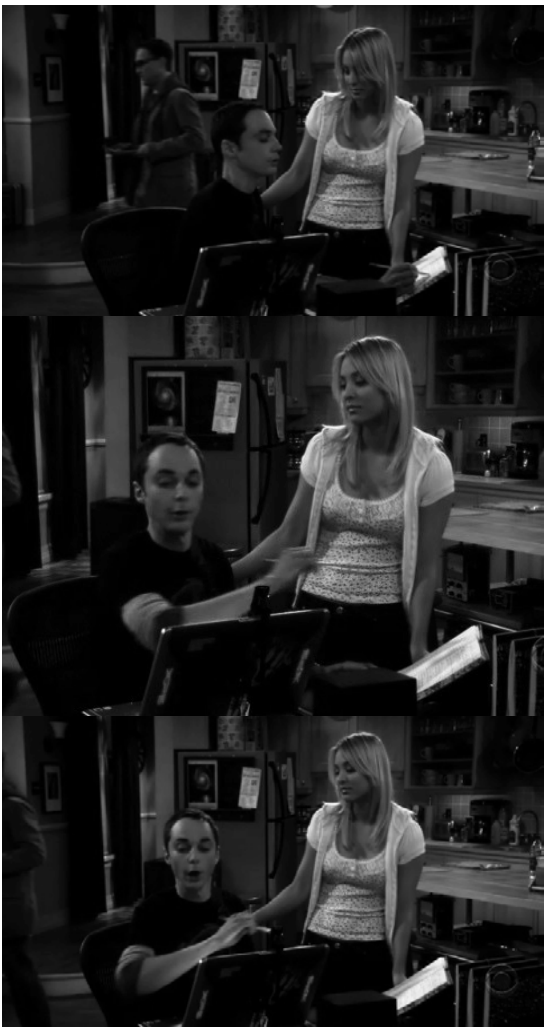

Fig. 40: Raised eyebrows in example (111)

Raised eyebrows also occur in exaggerations, aligning with the elements creating the hyperbolic meaning. Consider the example below, from *House M.D.*, which constitutes an exaggeration and where raised eyebrows are used by House in his humorous utterance. In this scene, we will only focus on the last part of House's reply—*half your age*—which represents exaggeration and teasing. This example is actually a mixture of hyper-understanding, teasing, sexual humor, and

exaggeration. Exaggeration occurs mainly in the last part of his reply, when raised eyebrows occur as well (underlined in the text):

(112) Cuddy: I need you to bring a lab coat.
House: I need two days of outrageous sex with someone obscenely younger than you. Like half your age.

Exaggeration is used in the last part of House's reply and emphasizes the adjective *younger* used in the previous utterance. Someone *obscenely younger* than Cuddy would be someone *half* her age. House targets Cuddy with his reply, because it points out the age difference between her and a younger woman (with whom House would have *outrageous sex*) and it can also be considered an insult towards Cuddy (by specifically pointing out the age difference, he implies that she is (too) old). The exaggeration was already present in the expression *obscenely younger than you*, and then highlighted by the last part which brings more precision on what *obscenely younger* [than Cuddy] really means (i.e., half her age).

House's raised eyebrows underline the elements that create this exaggerated effect and the teasing, namely *like half*, which is the core element allowing the hyperbole to be created. The implication that Cuddy is old would also be drawn from House's utterance *half your age*, because it underlines a big age difference between Cuddy and a possible female partner for House. The video stills in Figures 41 and 42 illustrate House's raised eyebrows when uttering his speech. Compare the baseline (neutral face) given in Figure 41 to the raised eyebrows in Figure 42. House's gaze is directed towards Cuddy, which also emphasizes the humorous effect in the exaggeration he employs.

Fig. 41: Neutral face before sarcasm occurs

Fig. 42: Raised eyebrows when saying *obscenely younger* (left) and *like half* (right)

Interestingly, raised eyebrows (as is the case for other gestures as well) can either be used on certain words or with bigger chunks of speakers' utterances. This is illustrated with some examples below, this time taken with sarcasm.

In example (113) below, taken from *House M.D.*, Wilson and House discuss a patient's refusal to go through an embarrassing procedure. The patient has chosen a less embarrassing procedure, which would allow her not to get undressed in front of Wilson. It is to this perspective of the situation that House gives a humorous twist. The instance is a case of exaggeration, sarcasm, and sexual humor. The part where raised eyebrows occur is underlined (see also Figure 43):

(113) House: What happened to a regular, old-fashioned colonoscopy?
Wilson: She was uncomfortable doing any more tests! I had to convince her to do that one!
House: Do you get that often? Women would rather <u>die</u> than get naked with you?

Fig. 43: Raised eyebrows when uttering *die* (middle)

In this example, it is the verb *die* that is underlined through the use of raised eyebrows. The verb marks House's exaggeration and sarcasm towards the whole situation. This exaggeration comes as a conclusion that House draws from what happened: a female patient refusing to go through an embarrassing procedure in front of Dr. Wilson. It is the perspective of not being seen naked in front of Dr. Wilson that draws the humorous implication. Sarcasm, as discussed in Chapter 4, encompasses the incongruity between what is said and what is actually meant; in this case, House does not sincerely think that *women would rather die than get naked with* Wilson. Sarcasm also includes a mockery, which, in this case, is directed towards Wilson. As such, Wilson becomes the focus of attention since the situation is somehow reversed: the female patient is not embarrassed by the procedure per se, but by being naked in front of him. Note also that, as an oncologist, Wilson treats patients who are likely to die. By not doing the procedure, the patient is likely to die. The situation is thus generalized and from one patient, the viewpoint is switched to *women* (in general) who *would rather die than get naked with* Wilson. The medical procedure gets a sexual interpretation, being minimalized to the element of lack of clothes, which enables the sexual reading. The humorous instance is thus created through means of reasoning (the conclusion

drawn by Dr. House) and metonymy (seeing the whole situation in terms of one element only, which then refers to a sexual reading of a medical procedure).

However, the gestural trigger accompanies the verb *die* (as shown by the video stills), which would then be considered the core humorous part of Dr. House's message: The video stills show Dr. House going from frowning (also a gestural trigger) to raising his eyebrows when uttering the verb *die*, and then frowning again when he finishes the rhetorical question (*than get naked with you*). The gestural trigger is represented by the raised eyebrows aligned with the verb *die* because this is also the core humorous message of House's sarcasm. Through it, House marks the exaggeration and the expression of surprise in his discourse (going from one woman who refuses a procedure that could help diagnose her to all women, women in general) and also his sarcasm (mocking Wilson for this particular 'incident', and the contrast between what is said and what is meant).

In the following example, taken from *The Big Bang Theory*, the group of friends (Leonard, Sheldon, Rajesh, and Howard) is on their lunch break, when Leslie comes to sit down with them. When she greets the four friends, she is being sarcastic towards Sheldon; the use of raised eyebrows is underlined in the text (see also Figure 44):

(114) Leslie: Afternoon men... Sheldon.

In this scene, Leslie implicitly excludes Sheldon from the group of men present at the table with him. By doing so, she excludes him from the frame ADULT MALE, and, as a result, mocks him. The pause (see Chapter 3) before uttering his name contributes to creating a shift of focus, where an audience first interprets this as a greeting for the whole group (which includes Sheldon), meaning which is then switched when Leslie utters Sheldon's name excluding him from the first greeting. The viewers thus access the mocking comment which targets Sheldon, as not included in the group of adult males at the table.

The video stills show the occurrence of raised eyebrows when Leslie utters Sheldon's name, which marks the switch of the first accessed meaning to a second, sarcastic one. We see that, when uttering the word *men*, Leslie does not raise her eyebrows, which are raised only when uttering his name after the pause (second frame; Leslie also uses a head nod with this chunk of speech).

Fig. 44: Raised eyebrows when uttering *Sheldon* (2nd frame)

Similar to the previous examples, raised eyebrows occur on a single word (i.e., *Sheldon*) in the speaker's message. Sometimes, as mentioned above, the core humorous message is not contained within a single word, but within whole utterances or parts of them, which, as a result, are underlined by the speakers' use of raised eyebrows. Consider the example below, taken from *House M.D.*, which co-occurs with raised eyebrows. In this scene, Dr. House says something which does not seem to have any connection with what the doctors are talking about. When everyone starts glaring, Wilson makes the expectation explicit and sarcastically asks for clarifications. Again, the place of occurrence of raised eyebrows is underlined:

(115) Cameron: There's got to be another way to diagnose hairy-cell.
Wilson: No, his bone marrow's indeterminate; spleen biopsy's the only way to go.
House: [standing by the window] You know, when the Inuit go fishing, they don't look for fish.
[Everyone looks at House for a bit, but he remains silent]
Wilson: [sighing] Why, Dr. House?

Fig. 45: Raised eyebrows with *Why* (right)

Fig. 46: Raised eyebrows when *Doctor* (left) *House* (right)

This example constitutes sarcasm based on explicitation. Dr. House's words are not understood by the members of his team, who would then expect an explanation for what he just said. Instead, he remains silent, while everyone starts glaring. Dr. Wilson makes this explicit by asking House the reason why the Inuit do not look for fish while fishing. His gestural attitude shows he is being sarcastic, by exaggerating his reactions (first the sigh, then raising his eyebrows when asking the question).[58]

The video stills in Figures 45 and 46 show the occurrence of raised eyebrows throughout Wilson's speech. In the four frames shown above, Wilson goes from a straight face gazing at House to raising his eyebrows and gazing upward when

58 See also Colston 2017 on embodied irony and eye-rolling.

uttering the sarcasm in *Why, Dr. House?* This is consistent with the central humorous part of his message, as he explicitly shows his sarcasm by gestural attitude, as well as prosody (his speech is louder than usual). This exaggeration of his reactions to House's reply is consistent with sarcasm, as also shown in previous works on sarcasm (Rockwell, 2000).

A final example is (116) below. This exchange is also taken from *House M.D.* and presents Dr. House asking the members of his team to bring him their boss's underwear. When one of them presents black panties to him claiming they belong to their boss, House immediately realizes he is lying. The occurrence of raised eyebrows is underlined:

(116) House: These are not Cuddy's panties.
[...] She's wearing a red bra today.
[...] Means the downstairs will match.
Foreman: <u>Do your research, people.</u>

Similar to the previous examples discussed above, raised eyebrows occur with a whole clause, namely *do your research, people*, uttered by Foreman. His reply is sarcastic because, first of all, it reveals an obvious incongruity between what is said and what is meant (i.e., he does not sincerely advise them to *do* their *research* on underwear). Secondly, this reply includes a mockery towards the team of doctors, but also towards Dr. House who asks them to bring their boss's underwear. This mistake (bringing some other pair of underwear) is considered not doing the proper *research*, and it applies metonymically to some kind of professional behavior (THE WHOLE STANDS FOR THE PART). The frame of RESEARCH would here include this type of absurd situation/behavior from the part of a superior figure, such as Dr. House.

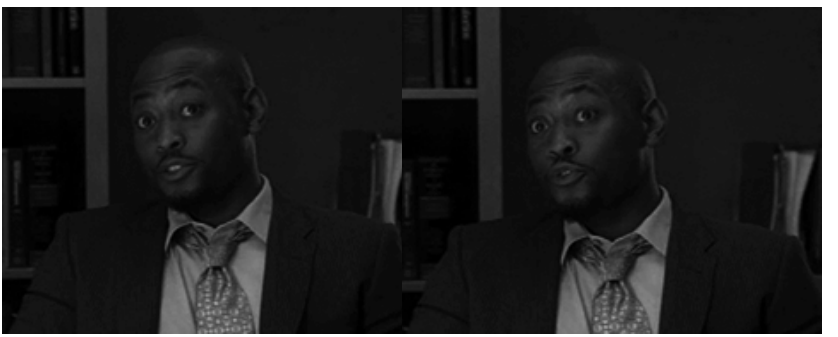

Fig. 47: Raised eyebrows with *do* (left) *your* (right)

Fig. 48: Raised eyebrows with *research* (left) *people* (right)

The video stills illustrate Foreman's gestural attitude when uttering *do your research, people*. Foreman keeps the raised eyebrows throughout the whole clause, which marks his sarcastic, non-serious attitude. His raised eyebrows have the role of gestural triggers which contribute to understanding his utterance in a humorous way. By raising his eyebrows, he alerts the hearers of the pretense of his utterance which he expects not to be interpreted at face value. Moreover, when uttering the word *research*, the speaker also nods (Figure 48), which represents a double trigger for this specific word. This can easily be explained by focusing on the word *research* as the most sarcastic one from his discourse. It is also the word that refers metonymically to the frame of WORK and probably to professional behavior in the workplace. Interestingly, the speaker also alerts the hearer of the importance of this word (*research*), by adding a double trigger when uttering it.

Let us now turn to the quantitative analysis of raised eyebrows in the corpus. Table 10 shows the occurrences of raised eyebrows with the humor types in the corpus. An important methodological point is to be made concerning these results. As will be recalled, the corpus contains in total 860 attestations (438 for *House M.D.* and 422 for *The Big Bang Theory*). However, as can be seen in Table 10, the total number of attestations is 1037; this is because, as discussed in Chapter 3 (and, as illustrated, among others, by example [113] above, where exaggeration, sarcasm, and sexual humor were said to be simultaneously at work), for a given instance, different humor types may be used. For the quantitative analysis, we have opted for a maximalist approach, where each occurrence of a given humor type is counted. For example, if an instance has both sarcasm and hyperunderstanding, it has been counted as one instance for each of these categories, even if they concern the same actual example. Similarly, there are in total 498 actual occurrences of raised eyebrows in the corpus; however, Table 10 presents a total of 698 occurrences, because also here we have taken a maximalist approach, making sure that each possible association between any occurrence of

raised eyebrows and a given humor type is counted. In other words, each instance of raised eyebrows is counted as one, even if it occurs with a single attestation that has only one humor type. For example, if a speaker makes a sarcastic comment, but raises their eyebrow at two different intervals during the sarcastic utterance, it will be counted as two occurrences. Such a double maximalist approach is well-justified, as the aim is to evaluate the extent to which a given gesture is associated with a given humor type, regardless of (a) whether it is a case of where a single type is at issue or simultaneously includes more types and (b) whether it concerns one or more occurrences of a gesture for a single utterance. While one could also adopt a more minimalistic approach (excluding, for example, all ambiguous cases), doing a maximalist count allows us to truly quantify the mutual association of the gesture (in this case, raised eyebrows) with a given humor type, as all possible associations have been taken into account. The frequency and association ratio should thus be interpreted as such. For example, Table 10 gives a relative frequency of 36% and an association ratio of 0.22 for the occurrence of raised eyebrows and sarcasm; this means that 36% of the occurrences of raised eyebrows happened with sarcasm, which also highlights the frequent association ratio.

Tab. 10: Occurrence of humor types with raised eyebrows

Humor type	Total	Raised eyebrows	Relative frequency	Association ratio
Sarcasm	315	224	36%	0.22
Hyper-understanding	95	62	10%	0.06
Joint fantasy	65	59	9%	0.06
Exaggeration	90	54	9%	0.05
Sexual humor	57	44	7%	0.04
Misunderstanding	97	36	6%	0.03
Tease	53	27	4%	0.03
Register humor	57	23	4%	0.02
Inter-textual humor	20	19	3%	0.02
Insider humor	43	17	3%	0.02
Self-glorification	17	12	2%	0.01
Stereotype humor	24	9	1%	0.01
Anecdote	10	9	1%	0.01
Situational humor	44	8	1%	0.01
Gender humor	10	7	1%	0.01

Humor type	Total	Raised eyebrows	Relative frequency	Association ratio
Self-mockery	6	5	1%	0.00
Parody	11	4	1%	0.00
Irony	7	4	1%	0.00
Understatement	6	4	1%	0.00
Meta-humor	6	1	0%	0.00
Puns	4	0	0%	0.00
Total	1037	628	100%	0.60

The results above show a clear pattern: raised eyebrows are generally used with all the different humor types found in this study. Their high frequency reveals they play an important role in the understanding of a humorous utterance. Speakers use raised eyebrows in order to underline parts of their speech that are more important than others in humorous utterances (which we claim represent the core humorous parts of the discourse). They thus alert the hearers of the humorous interpretation given to the speech, the switch to a pretense space. Consequently, speakers typically raise their eyebrows when using sarcastic utterances (36% of the total combinations of raised eyebrows). With hyper-understanding, raised eyebrows occur in 10% of the cases. Speakers also quite frequently use raised eyebrows with joint fantasy (9%), exaggeration (9%), and sexual humor (7%). Raised eyebrows appear with teases (4%), register humor (4%), inter-textual humor (3%), insider humor (3%), and self-glorification (2%). These categories of humor are all intentional, and therefore, it could be argued that raised eyebrows are intentionally used by speakers to indicate certain elements of their discourse that play a fundamental role for accessing the pretense space. What is striking is that this facial expression is also used with non-intentional cases of humor, such as misunderstanding (6% of total raised eyebrows) or situational humor (1%). In the case of misunderstanding, raised eyebrows mark the key elements in terms of which the switch in interpretations takes place. Moreover, it is consistent with Ekman's (1979) findings that raised eyebrows mark surprise in cases of questioning and doubting. It can be argued that such is the case with misunderstanding.

Although for humorous types that were less frequently used in the data (i.e., stereotype humor, anecdotes, gender humor, self-mockery, parody, irony, understatement, and meta-humor) there were fewer occurrences of raised eyebrows, it is fairly safe to assume that with more instances, the number of occurrences of raised eyebrows would also increase. This claim is warranted given the total

occurrences of raised eyebrows in the data, which shows a clear trend in the use of such facial expressions to signal the humorous intention of the speaker.

As discussed above, the functions that raised eyebrows play are numerous and raising eyebrows does not necessarily mean humorous intentions, as will be discussed later. But, as underliners (Ekman, 1979), they are placed on important parts of speech that are more salient than others for the interpretation of the message. They come as 'helpers' that underline the core part of speakers' intentions.

5.2.2 Frowning

Another facial expression that is frequently used in the data is frowning. Similar to raised eyebrows, it occurs on elements in the message that mark the switch from a serious discourse base space to a non-serious, pretense space, and as such, alert the viewers to the humorous intention on the part of the speaker, as illustrated below.

Consider the example below, taken from *House M.D.*, where frowning is used. In this scene, the doctors discuss the case of a patient who is not getting better and whom they cannot diagnose. The instance is built on hyper-understanding, where one of Foreman's words (*fairly*) is repeated by House in order to trump the original meaning. As before, the place where frowning occurs is underlined (see also the video stills below):

(117) Foreman: The Senator's LP showed no sign of infection and the MRI looks fairly clean.
House: I guess we can tell him <u>he is fairly healthy and could</u> go home.

As shown in Figure 49, House goes from raised eyebrows (co-occurring with the elements *tell him*), also a trigger of the pretense space in which the instance is to be understood, to frowning (Figure 50) which 'surrounds' the key element *fairly*, the trigger in hyper-understanding. The adverb is repeated from Foreman's original utterance and used here to reverse the intended meaning: in Foreman's utterance, it has a positive connotation, the implication being that the tests were clean in the right way/amount and did not show any sign of infection. When the same adverb is repeated by House, the perspective is changed and the default meaning intended by Foreman in a good and positive way is reversed to a negative one. The view is generalized, from a simple MRI to the patient's general health. Consequently, House adds that the patient is *fairly healthy*, which is not the case, since his condition does not improve. Note also that, when the adverb

fairly is uttered; House also leans forward and nods, which can be considered as a double trigger for this word. Since this is the key element that allows the shift from the positive to the negative interpretation of the same adverb, we can safely consider that this is why the speaker conveys more meaning with his gestural behavior when uttering this word.

Fig. 49: Frowning with *He is* (right)

Fig. 50: Frowning with *fairly* (left)

In this example, frowning, as opposed to raised eyebrows, can also imply disagreement with Foreman's previous utterance. The fact that the meaning is switched from what Foreman said to a new interpretation, with a shift of perspective that viewers have on the whole situation (i.e., a clean MRI does not mean that

the patient is healthy), reinforces the idea that this gesture can be seen as disagreement from the speaker towards a previous idea. It is thus through frowning that the speaker marks the contrast between the two interpretations.

In example (118) below, the same idea of disagreement is conveyed in the speaker's frowning. In this scene, taken from *The Big Bang Theory*, Beverley drunkenly kisses Sheldon and then refers to an earlier scene when she was admiring the looks of a busboy in a bar. Frowning is used when she expresses her disagreement and change of mind and occurs with insider humor (the earlier scene is fundamental for the understanding of the whole context) and situational humor. The occurrence of frowning is underlined:

(118) Beverley: Speaking of warm feelings, come here.
[She grabs Sheldon and kisses him]
Beverley: No, I'd rather have the busboy.

Fig. 51: Frowning with *No* (right)

Fig. 52: Frowning with *I'd rather* (left)

In this example, Beverley makes her disagreement and change of mind explicit, via the use of *No* (disagreement) and *I'd rather* (change of mind) at the beginning of her sentence. The humorous effect arises here from the situational incongruity, namely Beverley's kissing Sheldon, which is highly inappropriate since Beverley is his roommate's mother. The previous context that Beverley had been looking at a busboy that she found particularly attractive is essential to interpret the whole humorous message.

The video stills above show Beverley's frowning when uttering *No, I'd rather*. Frowning here adds to the disagreement Beverley feels between Sheldon and the busboy. Moreover, if we compare this to example (117) above, in both examples, there is an opposition between a previous context and a later one. In (117), the opposition emphasized House's disagreement with what Foreman previously said, whereas in (118), the opposition concerns two different characters in the same episode, towards whom Beverley expresses sexual attraction.

In the case of sarcasm, the same idea of disagreement appears that adds to the humorous interpretation of the utterance. In a way, the speaker dismisses the previous idea/context and thus adds a new layer of meaning to the discourse. Take for instance example (119) below, which is created through metonymy. The exchange is taken from *House M.D.* and presents House and Chase discussing a patient's condition. The discussion soon turns into House mocking Chase, who is Australian. Although the entire exchange includes more than one instance of sarcasm, the focus is on House's last reply, which is introduced by frowning:

(119) House: The point is, what are the kid's chances without it?
Chase: Minimal at best. The poison's broken the blood-brain barrier.
House: I assume "minimal at best" is your stiff upper lip British way of saying "no chance in hell"?
Chase: I'm Australian.
House: [frowns] You put the Queen on your money. You're British.

The sarcastic layering in this example builds on metonymic inferencing from the part of the speaker. The metonymic association is here represented by MONEY FOR COUNTRY, where the currency stands for the entire cultural identity of a person. Evidently, House is well aware of Chase's identity and cultural background but does not miss an opportunity to make him the target of his jokes. He is thus saying something that both House and the audience know not to be true. Chase's words are twisted and their meaning given a more negative connotation (*minimal at best* becomes *no chance in hell*) and his cultural background is mocked. House changes Chase's origins from Australian to British, which can also be seen as metonymy, referring back to the Commonwealth (here, Australia would be PART of the British Empire, which would make Chase British). These layered meanings are structured in a complex way to refer to WHOLES that the audience is able to retrieve inferentially (i.e., money is part of a country, Australia is part of Britain). All these meanings are used in an incongruous way (the viewers know very well they are not true) in order to mock Chase.

Fig. 53: Frowning in example (119)

In this example, frowning does not co-occur with any verbal element in House's utterance, but is used as introductory element at the beginning of the discourse. This gesture triggers the humorous part in the speaker's utterance, mainly the

pretense space in which the utterance has to be understood. It also reinforces the idea of disagreement towards what Chase said (*I am Australian*), providing reasons why he cannot be Australian (*You put the Queen on your money, you're British*). This meaning of disagreement marks the incongruity between two opposing readings (Chase's and House's), which also creates the humorous effect of the utterance.

The video stills in Figure 53 show House's facial expression when uttering the reply. House's frowning is more evident in the second frame, just before replying to Chase (note also the head tilt, which will be discussed in more detail below; this can also be considered a gestural trigger for the humorous reading of his utterance). The fact that it does not occur on a verbal element in particular would make his whole utterance sarcastic (and hence, non-serious, accessed in a pretense space). It also comes as disagreement or even difficulty (Ekman, 2001) in believing Chase's explanation that he is Australian. By frowning at the beginning of the utterance, House dismisses Chase's argument of being Australian from the very beginning. In this way, frowning contributes to the humorous interpretation and the mockery included in House's message, since it adds to considering Chase British, instead of Australian.

Example (120) below provides an instance of sarcasm, where frowning does co-occur with verbal elements, relevant for the meaning of the humorous message. In this scene, also from *House M.D.*, House and Cuddy are explaining to a patient the results of some of his tests. As House is a diagnostician, he mocks the patient's question, since it is obvious that that is what they have been doing. The place where frowning occurs is underlined:

(120) House: Either way, unless we treat you immediately, it could kill you.
Cuddy: Or, it could be nothing. Reading brain MRIs is not an exact science.
Senator: What caused my s-s-symptoms?
House: <u>Wow, excellent question</u>. Many doctors <u>wouldn't have gone there</u>.

Sarcasm builds on opposition, targeting both the patient and Cuddy (in the last line, his gaze goes from the patient to Cuddy, who does not know either what the final diagnosis is). The adjective *excellent* carries a double trigger, since, in addition to frowning, House also tilts his head towards the patient, which adds emphasis to this particular word. Both his lines are sarcastic, since it is obvious that, as diagnosticians, they are trying to find the right diagnosis for the patient.

Frowning is maintained throughout House's utterance (see the video stills below), marking the non-seriousness of his words. Given that this sarcastic utterance is built on the incongruity between what House says and what both he and the audience know to be true, frowning once again reinforces the contrast between these two readings (the serious and non-serious space). His reactions are exaggerated (particularly in the first two frames, when uttering *Wow, excellent question;* note also the use of the exclamation) in order to target the patient for asking an obvious question. In Figure 54, House also nods, which further underlines the adjective *excellent*.

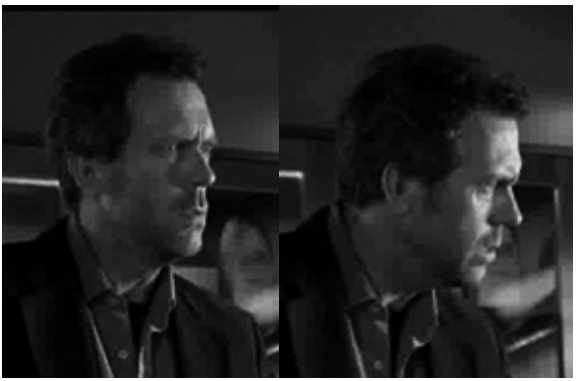

Fig. 54: Frowning with *Wow* (left), *excellent* (right)

Fig. 55: Frowning for *wouldn't* (left) [...] *gone* (right)

As seen in Figure 54, House's frowning co-occurs with the sarcastic remark *Wow, excellent question*. The patient's question is anything but excellent, since it is obvious that they have been asking themselves the same question. Given that before asking the question, House and Cuddy were discussing his symptoms, this interpretation further reinforces the mockery towards the patient's question. The added remark *Many doctors wouldn't have gone there* also adds to the mockery targeting the patient. This also helps interpret the first utterance as sarcastic, since it implies how obvious that question was for the doctors. Since frowning is used throughout his message, it can also be seen as expressing an idea of disagreement, marking the contrast between what he says and what he means.

The same happens in example (121) below, taken from *The Big Bang Theory*. In this scene, while the three friends are preparing the Christmas tree, Sheldon starts talking about Newton, whom he thinks should be celebrated at Christmas time instead of Jesus Christ, to which Leonard replies sarcastically. The occurrence of frowning is underlined in the text:

(121) Sheldon: Isaac goes at the top of the tree.
Leonard: No, he doesn't.
Sheldon: I understand. You dispute Newton's claim that he invented calculus and you want to put Gottfried Leibniz on the top.
Leonard: Yeah, you got me. I'm a Leibniz man.

Leonard's reply is sarcastic and comes as a mockery to Sheldon's misunderstanding. Sheldon, who wants to put Newton's bust on top of the tree (completely opposed to the Christmas spirit), misinterprets Leonard's refusal as an admiration for Leibniz instead of Newton. This misunderstanding makes Leonard reply with the opposite: *yeah, you got me, I am a Leibniz man*. Sarcasm here contains a mockery towards Sheldon who does not access the Christmas reading and actually thinks Leonard's unwillingness to accept Newton as Christmas symbol would have some scientific basis.

The stills show Leonard frowning when being sarcastic. Compare the neutral face in Figure 56 with the frowning used by Leonard for the rest of his utterance. Frowning here marks sarcasm, representing an opposing thought. Regarding the idea of disagreement, this can be seen as underlining the conflict between what is said and what is meant. It is as if Leonard's words say one thing, but his gestural behavior shows the contrary. All these elements add to the sarcastic interpretation of his utterance, similar to example (120) above, where House's frown represents the opposite of his words.

Fig. 56: Neutral face for example (121)

Fig. 57: Frowning when uttering *Yeah* (left) *Leibniz* (middle) *man* (right)

One last example where frowning is used, this time with a metaphor, is (122) below. Taken from *House M.D.*, this scene presents an exchange between Dr. House and Chase. Dr. House decides to send Chase to search an inmate's cell (instead of sending Foreman, who has already been in prison):

(122) Chase: I assume you have a reason beyond wanting to make me completely miserable?
House: You have a prettier mouth. Better chance the inmates will open up to you.

Here, House builds his sarcasm on a metaphor, linking a body part (i.e., the mouth) to the domain of sex. The metaphor *will open up to you* can thus be transcribed as MOUTH AS SEXUAL ACTIVITY, based on the assumptions that the inmates

will target Chase more easily than any other member of the team. Metonymy is also involved here, since PARTIAL ACTIVITY stands for the WHOLE ACTIVITY. In the process of opening up, the entire SEX frame is accessed. Note also the use of the adjective *prettier* and the reference to only one body part; given the stereotypes and clichés around life in prison, this revolves around the sexual activities of the inmates. The humorous effect arises also from the expression *open up* since two readings overlap. First, there is the idea that Chase is sent to find information about one of the prisoners and thus will have to talk with the other inmates. Hence, the idea of *opening up* and expressing their feelings freely. The second meaning refers to the sexual activity triggered by Chase's *prettier mouth*. The play on these words and meanings construes the incongruity in sarcasm.

The stills show House frowning when uttering the second utterance (*Better chance the inmates will open up to you*). Although there is a slight frowning in the first frame (Figure 58, left), this becomes obvious when House utters the last line: *Better chance the inmates will open up to you.* When House utters the word *chance*, there is an overlap with a slight nod, which means that this word carries a double trigger for the humorous interpretation of this context. The frowning here marks the pretense space, the non-seriousness of his suggestion.

Regarding the role frowning plays in this example, the idea of disagreement that could be implied in the examples discussed above, can still be used to interpret this example. This disagreement takes however the form of an incongruity between what is said and shown to be true. What House says is obviously sarcastic and thus frowning could be exploited in a way as if to show the difference between what is said and what is meant by the speakers. It marks the non-seriousness of the reading preceding or co-occurring with frowning.

Fig. 58: Frowning when uttering *chance* (right)

Fig. 59: Frowning for *inmates* (left) [...] *you* (right)

The quantitative analysis shows that frowning represents 14.0% of the gestural attestations in this corpus. It is frequently used with certain humor types presented in Table 11 below. As was done for raised eyebrows, the analysis targets the association of the total number of instances for humor types and the number of instances where frowning occurs. The humor types have been arranged in descending order by the number of instances where frowning was used.

Tab. 11: Occurrence of frowning in humor types

Humor type	Total	Frowning	Relative frequency	Association ratio
Sarcasm	315	121	47%	0.12
Hyper-understanding	95	25	10%	0.02
Exaggeration	90	21	8%	0.02
Sexual humor	57	18	7%	0.02
Tease	53	13	5%	0.01
Joint fantasy	65	10	4%	0.01
Register humor	57	8	3%	0.01
Inter-textual	20	7	3%	0.01
Stereotype humor	24	7	3%	0.01
Insider humor	43	6	2%	0.01
Misunderstanding	97	4	2%	0.00
Situational humor	44	3	1%	0.00
Parody	11	3	1%	0.00
Self-glorification	17	3	1%	0.00
Irony	7	2	1%	0.00

Humor type	Total	Frowning	Relative frequency	Association ratio
Gender humor	10	1	0%	0.00
Self-mockery	6	1	0%	0.00
Anecdote	10	1	0%	0.00
Understatement	6	1	0%	0.00
Puns	4	1	0%	0.00
Meta-humor	6	0	0%	0.00
TOTAL	1037	256	100%	0.24

Almost half the occurrences of frowning (47%) are used with sarcastic utterances. Frowning is also quite frequently used with hyper-understanding (10%), exaggeration (8%), and sexual humor (7%). Frowning is used less often, or not at all, with certain humor types, such as gender humor, self-mockery, anecdote, understatement, puns, and meta-humor. A possible explanation for the use of frowning in sarcasm, hyper-understanding, exaggeration, and even sexual humor would be the interpretation of this gesture as expressing 'disagreement' which underlies all of these types of humor: in sarcasm, the message presents an intentional incongruity with what the hearers know to be true; in hyper-understanding, the speaker trumps the interlocutor by using his choice of words to reverse the intended meaning; exaggerations present transformed proportions and dimensions; and in sexual humor, the speakers change the reading to a sexual interpretation. Frowning could be seen as marking the contrast between these different interpretations and implications. Strikingly, it is not as frequently used with joint fantasy (4%); the reason for this absence may be that speakers imagine a comical situation that is shared with their interlocutors, and thus presents less of a conflict with previous utterances. Certain humor types that also present conflictual and pseudo-aggressive replies do not use frowning as frequently as would be expected: teasing (only 5% of frowning), register humor (3 %), irony (1%), and parody (1 %). Misunderstanding does not present many occurrences with frowning (only 2% of frowning), despite Ekman's claim that this facial expression marks the difficulty in understanding something or even perplexity.

5.2.3 Combined facial expressions

There are frequent cases when raised eyebrows and frowning are mixed by the speakers for the same humorous intentions. In the examples above, the facial expressions are also often combined with head movements.

In the example below, from *House M.D.*, sarcasm and stereotype humor build on metonymic association. Dr. House builds humor on the inclusion of his employee Foreman in the frame of AFRICAN-AMERICAN. The place of occurrence of raised eyebrows is marked in bold whereas frowning appears in italics:

(123) House: [To Foreman] I want you to go to his house and find his stash. I'll bet you know all the good hiding spots.
Foreman: Actually, I never did drugs.
[Leaves]
House: [To Cameron] Better go with him, **in case he gets** *high*.

Sarcasm in combination with stereotype humor builds on the implication that Foreman, since he is African-American, must have taken drugs, an assumption built on stereotypes regarding the African-American community. The linguistic mechanism creating both sarcasm and stereotype humor is metonymy, as a PART FOR WHOLE relation. As part of the African–American community, Foreman must fit into the frame and must know a lot about drugs. 'Drug' is one of the elements that triggers the frame AFRICAN-AMERICAN. Sarcasm targets Foreman by implying that he knows *all the good hiding spots* and also presents House taking advantage of this stereotype to mock Foreman.

Fig. 60: Raised eyebrows and frowning in example (123) when uttering *in case* (1) *he gets* (2) *high* (3)

Even though the sarcastic implication of Foreman being involved with drugs was already present in House's first utterance (*I'll bet you know all the good hiding spots*), which is immediately understood by Foreman (*actually, I never did any drugs*), we will focus on the last utterance, addressed to Cameron and where both raised eyebrows and frowning illustrated above are used in combination: *in case*

he gets high. Both facial expressions used here mark the pretense of House's assumption, and they alert the viewers to the non-seriousness of this meaning. If we consider the idea of intersubjectivity where common ground is assumed or established among interlocutors, House uses these facial expressions for humorous purposes.

The video stills in Figure 60 show the change in facial expression with sarcasm and stereotype humor as used above. Both raised eyebrows and frowning mark the non-seriousness of this utterance and the layered meaning in House's utterance. House asks Cameron to accompany Foreman for the search in the patient's cell (the patient being an inmate in a correctional facility), so the utterance is addressed to her after Foreman has left the room. The raised eyebrows occur at the beginning of the sarcastic utterance (*in case he gets*) and the gestural expression is changed when the adjective *high* is uttered and so frowning occurs. This change in attitude might be due to the fact that the adjective *high* is the core humorous part building the two humor types: it links stereotype humor and sarcasm. *High* refers back to the metonymy associating Foreman to drugs and thus links stereotype humor and sarcasm. By changing the gestural behavior, the focus falls on *high* since it is not included in the same gestural display as *in case he gets*. As a whole, this utterance is sarcastic and moves the discourse base space to a pretense space, which is marked by the facial expressions used by the speaker. By changing the gestural focus, the attention falls on the adjective making the link between the different implications and meanings generated by both sarcasm and stereotype humor.

If, in example (123), the gestural focus, expressed by frowning, falls on the adjective *high*, in example (124) below, taken from *The Big Bang Theory*, it is the speaker's raised eyebrows that mark the focus on the pronoun *you*, allowing the mockery towards Sheldon. In this example, the raised eyebrows co-occur more clearly with the core humorous message, they are therefore used with the element allowing the explicit mockery. In this scene, Sheldon, who wants Leonard and his girlfriend to stay together, asks his former girlfriend (Penny) to stay out of their relationship. Imagining a situation where Penny would still be sexually interested in Leonard, he asks her to *suppress her libido*. Her reply is sarcastic, with the occurrence of raised eyebrows marked in bold (on the pronoun explicitly targeting Sheldon), and frowning in italics:

(124) Sheldon: [...] consider the following scenario: You're sitting in your apartment, it's late, you're alone. Your hypothalamus is swimming in a soup of estrogen and progesterone... Suddenly, even Leonard seems like a viable sexual candidate.
[...]
Sheldon: Now, should that happen, I would ask to find some way to suppress your libido.
Penny: *I could* think about **you.**

Penny's reply is sarcastic, targeting Sheldon since it implies that thinking about Sheldon would suppress someone's sexual desires. It is thus formed by explicitation, i.e., by exemplifying how her libido could be suppressed. This utterance ridicules Sheldon and it is a reply to the ambiguity in Sheldon's words: *some way to suppress your libido*. Penny takes advantage to include Sheldon in the entire scenario where she would need a suppression of libido.

The video stills show Penny while uttering *I could think about you*. The beginning of her utterance shows slightly raised eyebrows mixed with frowning. Nonetheless, she obviously and explicitly raises her eyebrows, as can be seen from the muscles on her forehead, when uttering the word *you*, the word via which the sarcasm is conveyed. It contains, again, the core humorous meaning which is underlined by the use of raised eyebrows by the speaker. Frowning occurs at the beginning of her suggestion, also marking the non-seriousness of the discourse (see also example [119] where frowning occurs before the sarcastic message). In Figure 62, there is no sign of Penny's frowning anymore.

Fig. 61: Raised eyebrows with *I* (left) *could* (right)

Fig. 62: Raised eyebrows for *you*

One last example is (125) below, taken from *House M.D.* In this scene, House builds his sarcasm on reasoning. The patient that the team is trying to diagnose is suspiciously nice according to the doctors. When they start treating him for syphilis, the patient becomes aggressive towards his wife. House's sarcastic remarks (in his two utterances) refer to what the previous speaker (Taub) has said; at this point, they all believe House too is suffering from syphilis. The words in bold mark the occurrence of raised eyebrows, while the italics mark the use of frowning:

(125) Taub: It's not frying his liver, it's frying his syphilis. Penicillin's working, the real patient is emerging.
House: So...*syphilis* **prevents domestic violence**. I'm going to be **even** more attractive to the ladies.

The focus of attention falls on House's first utterance: *syphilis prevents domestic violence*, although the raised eyebrows also occur on the adjective *even* (a gestural trigger as well in this case). We draw the attention on this utterance because of the combined facial expressions that the speaker uses. The last three words (*prevents domestic violence*) mark the moment where House raises his eyebrows whereas the repeated word *syphilis* is uttered while frowning.

Fig. 63: Facial expressions when uttering *syphilis* (left) *prevents* (right)

Fig. 64: Facial expressions when uttering *domestic violence*

Through reasoning (i.e., if P, then Q), the speaker reaches a conclusion. In this context, it is a sarcastic conclusion, meaning, first of all, that it is not a serious one (i.e., House does not really believe that syphilis prevents domestic violence), and, secondly, that it targets someone in particular (in this case, the team of doctors or just Taub, who had reached that conclusion and believes that the treatment is efficient for the patient). Sarcasm here interacts with exaggeration, because House takes one event (the patient being aggressive toward his wife) and generalizes it to include all men and women. In House's sarcastic view, syphilis does not just prevent one husband from being aggressive towards his wife, but it prevents domestic violence in general, i.e., for all couples.

Figures 63 and 64 show House frowning when uttering the word *syphilis* and then raising his eyebrows when uttering *prevents domestic violence*. The word *syphilis* is repeated from the previous speaker's utterance (*It's not frying his liver,*

it's frying his syphilis). House here gazes at Taub when repeating the word *syphilis*, but then starts gazing upward when adding the sarcastic reasoning *prevents domestic violence*. Raised eyebrows co-occur here with a change of gaze (from Taub upward), when House adds the sarcastic remark. Interestingly, the speaker changes here the facial expression because he first repeats the word from the interlocutor's discourse and then adds sarcastic remarks. The difference is made for hearers to be alerted to his humorous intentions. Raised eyebrows as well as frowning represent gestural triggers which underline the humorous part of his message.

In terms of layered mental spaces configuration, the link with the discourse base space is achieved through the repetition of the word *syphilis*. It refers to the common ground between the speakers and the audience, retrieved from the previous context. This discourse base space refers to the pretense space added by House's *prevents domestic violence*, which is also underlined by his use of raised eyebrows. Since it represents sarcasm, this utterance is to be accessed in a non-serious, pretense space and not interpreted at face value.

To sum up, speakers frequently combine these facial expressions (which are also combined with different other gestures and head movements). When these gestures are combined, they usually underline different elements in the discourse that aid the hearers to access the pretense interpretation. The adjective *high* in (123) marks the link between sarcasm and stereotype humor; in (124), Penny stresses the pronoun *you* by using raised eyebrows, although the utterance starts with frowning; and, finally, in (125), House frowns when repeating the word *syphilis* which is the topic of their discussion, but changes the facial expression when adding the new sarcastic comment.

5.3 Head movements as gestural triggers in humor

As observed by Lee and Marsella (2010, p. 552), "we may nod to show our agreement to what the other is saying, shake to express disapproval or negation, or tilt the head along with gaze aversion when pondering something." Head movements, more specifically head tilts and head nods, are frequently used in the data to mark certain elements in the humorous utterances, as already indicated for some of the examples above. Several other examples are discussed below to illustrate the role they have in humorous exchanges. Similar to the part on facial expressions, we discuss here head tilts, head nods, and combinations of these two head movements.

5.3.1 Head tilts

Similar to facial expressions, head tilts have the role of gestural triggers in humor. They are often used with a variety of humorous categories, such as sarcasm, misunderstanding, hyper-understanding, or sexual humor. They also combine with the facial expressions discussed in more detail above. As part of the gestural attitude of the speaker, they highlight some word or phrase in the utterance that has a fundamental role in the interpretation of the humorous message.

An example such as (126) below, taken from *The Big Bang Theory*, constitutes hyper-understanding and joint fantasy. The head tilt is used by Sheldon on several elements of his utterance. In this scene, Sheldon comes to Leonard's room to comfort him after a dispute with his mother. The head tilts are underlined:

(126) Leonard: What do you want, Sheldon?
Sheldon: What I want is to be departing the Starship Enterprise in a one-man <u>shuttle craft</u> headed to the <u>planetoid</u> I rule known as Sheldon Alpha Five.

Hyper-understanding is structural in this case, since Sheldon takes advantage of Leonard's choice of words in order to switch the reading of the utterance. Leonard's question *what do you want*, referring to his desires in this particular situation where Leonard is feeling down, is altered by Sheldon in his reply to his desire in general, this (comical) hypothetical desire to be sent on a spacecraft as ruler of an asteroid. The ambiguity in this question is used by Sheldon to shift the attention and reverse the meaning of the utterance. From the real and particular situation in which Leonard finds himself, Sheldon creates a fantasy world where he could leave on a spacecraft and rule a planetoid named after himself. The details given by Sheldon (i.e., *Starship Enterprise*, *a one-man shuttle craft*, the name *Sheldon Alpha Five*) add to the humorous effect of the comical hypothetical since they structure the fantasy world. The humorous effect comes not only from the hyper-understanding, but also from the restructuring of this particular situation to a fantasy world, unlikely to happen. Hyper-understanding (created through the structural parallelism *what I want*) is the connection between a possible world and a fantasy world Sheldon imagines.

Interestingly, as also shown in the video stills below, Sheldon tilts his head when uttering certain elements of his utterance, namely *shuttle craft* and *planetoid*. These elements, as already mentioned above, build the fantasy world Sheldon imagines and shares with Leonard. The head tilt can thus be considered a gestural trigger that underlines the core humorous parts of the message, marking

the elements that build the fantasy world, activating this way the layered meanings.

Compare the frames below, where Sheldon's head is tilted: first to the left when uttering *shuttle craft* and then slightly to the right when uttering the word *planetoid*. These elements are essential for the construction of the joint fantasy. Despite the fact that they are part of the hyper-understanding as well, these elements actually form the joint fantasy in this case. As gestural triggers, they emphasize these elements that are more important than others to the understanding of the humorous utterance. The head tilts above do not necessarily create the hyper-understanding specifically, but this humor type is also marked in example (126) above. When uttering *what I want*, Sheldon tilts his head upwards (with a change of gaze) and the verb *want* is also lengthened. Although these elements are not shown above, they do call the attention of the hearers to these particular elements as well.

Fig. 65: Head tilt with *shuttle craft* (middle and right)

Fig. 66: Head tilt with *planetoid* (left)

In the next example, which constitutes both exaggeration and sarcasm, the focus is drawn to the elements that create the exaggerated proportions in Sheldon's speech. Sheldon uses a head tilt (underlined) when uttering *most significant achievement*, which represent the elements that build exaggeration:

(127) Sheldon: [...] Leonard comes from a remarkably high-achieving family, who have all chosen high-achieving partners. He probably feels that it's doubtful that his mother will be overly impressed with his dating a woman whose <u>most significant</u> achievement is memorizing the Cheesecake Factory menu.

Fig. 67: Head tilt for *most significant* (right)

Fig. 68: Sheldon uttering *achievement*

There are several elements that constitute exaggeration in the example above: the use of elements such as *high, doubtful, most significant, overly*. These elements add to the proportions Sheldon gives to the whole situation and the analogy between Leonard's *high-achieving family* and Penny, a simple waitress. By first

introducing Leonard's family and their social achievements, and then shifting the focus to Penny and ridiculing her achievements, the exaggeration marks the huge gap between these two sides. Both sarcasm and exaggeration are created through this analogy: the sarcasm targets Penny specifically and mocks her so-called achievements, being seen as a person whose most significant achievement cannot be compared with the elements introduced previously. Except for the implicit analogy between the two sides, it is also by means of explicitation that the humorous effect arises, namely by specifying that Penny's most significant achievement would be *memorizing the Cheesecake Factory menu*.

The head tilt (see the video stills in Figures 67 and 68 above) used by Sheldon marks the element creating the analogy between Penny's achievements and the family Leonard comes from, highlighting in this way Penny's position. Since Sheldon already introduces phrases such as *high-achieving family* and *high-achieving partners*, it is through the explicitation of Penny's *most significant achievement* that the viewers compare the two sides (Leonard's family on the one hand and Penny on the other hand).

Similar to the examples discussed earlier, the head tilt is accompanied by other gestural triggers as well, such as gaze (Figure 67, right). When using the superlative to highlight Penny's achievements, Sheldon gazes at her directly, making the target of his sarcasm when talking about her *most significant achievement*. The head tilt underlines the superlative, emphasizing the exaggeration he uses to ridicule her. Sheldon also uses head nods and other head movements in this example (not shown above).

Consider also example (128) below, from *House M.D.*, which constitutes sarcasm and where a head tilt is used as gestural trigger by the speaker. In this example, sarcasm, in combination with self-mockery, builds on the metonymy referring to House and Mark. The speaker, Stacy, shows her anger towards House who harasses her husband, now in a wheelchair. The metonymy is based on what the two of them have in common, namely a handicap: Mark is in a wheelchair after an accident, and House uses a cane. The head tilt is underlined:

(128) Stacy: This is unbelievably difficult for Mark, which you should know, which you should be able to summon up some level of empathy for.
House: Right. The Crippled Boys. We <u>should start</u> a band.

Sarcasm here includes both Mark and House, but also Stacy, and is built on what the two characters have in common: a problem with their legs. The metonymy can be transcribed as PART FOR WHOLE, or, more specifically, CONDITION FOR PERSON. Both Mark and House are seen in relation to their condition. The sarcastic

utterance is built on the association made by Stacy in the first line, when she makes this connection between the two of them: *which you should know, which you should be able to summon up some level of empathy for*. The implied meaning is that House should be more sympathetic since he suffers from the same condition. House, however, takes this to a second level, a pretense space, where their common condition could make them start a band (*The Crippled Boys*). This is also created through constructional parallelism, as the names of most bands are construed with the definite article *the* and an adjective preceding a noun (e.g., The Dead Kennedys, The Rolling Stones, The Smashing Pumpkins, etc.). The suggestion that they should start a band is sarcastic, targeting not only Mark and House, but also Stacy, for making the comparison between the two of them.

House nods when saying *Right* at the beginning of his utterance, consistent with the agreement gesture (although manipulated in this context, since House is being sarcastic). *Right* also implies an affirmation, which is aligned with his gestural attitude. Our concern is with the head tilt which co-occurs with House's suggestion of starting a band, just after having given the name of the band. This head tilt can thus be interpreted as a gestural trigger, marking the sarcasm in House's utterance. As shown in Figure 69, this gesture is combined with frowning, which is also a gestural trigger. Both these gestures (head tilt and frowning) add to the humorous effect of the utterance since they emphasize the non-seriousness of this suggestion. The modal verb *should* occurs with the head tilt to the right, triggering in this way the sarcastic suggestion House makes.

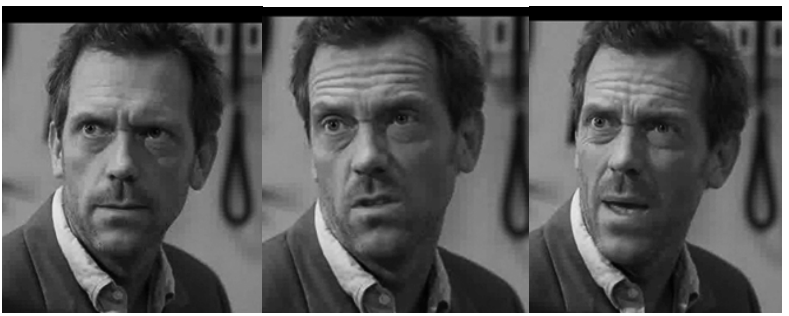

Fig. 69: Head tilt with *should* (middle)

Another similar example constituting sarcasm and sexual humor is (129) below, also from *House M.D.* In this context, House designates certain tasks for each of the team members. Although he calls the other team members by their (last) name, he calls the new girl on his team Thirteen, since when she applied for the

job, she was assigned a number and her number was thirteen. It becomes later evident that Thirteen is bisexual, fact which House does not fail to pick on frequently. Similar to above, the occurrence of the head tilt is underlined:

(129) House: Taub and Thirty-One...
Thirteen: Thirty-One?
House: Oh, I'm sorry, I thought that either way was good with you.

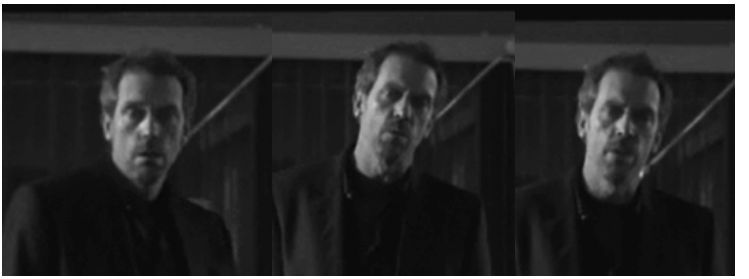

Fig. 70: Head tilt with *either way* (middle)

Sarcasm draws here from sexual humor and targets Thirteen because of her sexual orientation. This is done by switching her nickname from number thirteen (13) to number thirty-one (31). Here the number that is used to refer to her is also used to metonymically refer to her sexual orientation. As such, sarcasm and sexual humor are created through the phrase *either way* because it allows generalization.

The head tilt occurs on the core humorous elements of House's utterance, i.e., *either way*. It is this phrase specifically that allows the switch to the sexual interpretation and the reference to Thirteen's sex life. By underlining it through his gesture, the viewers are directed to the pretense space created by this utterance. The video stills in Figure 70 illustrate House's head tilt when uttering *either way*. The head tilt is coming back to a horizontal position towards the end of his utterance, but is mostly apparent with the phrase *either way*, which can make it similar to a shrug, expressing in this case doubt.

These head tilts frequently occur with various humorous instances, where they have the role of emphasizing certain elements that are fundamental for the interpretation of the humorous implications. As seen above, speakers tend to change their gestural behavior depending on the core humorous parts of their messages. If, in example (126), the speaker chooses to use a head tilt on elements that create the joint fantasy, for hyper-understanding in the same example, other

non-verbal and verbal underliners are used (such as the lengthening of sounds); in example (127), the head tilt occurs on the element that emphasizes the use of the exaggeration; in example (128), the speaker first introduces his utterance with a nod and then combines a head tilt and frowning for his sarcastic utterance; in example (129), the head tilt occurs with the phrase *either way* which marks both sarcasm and sexual humor. In these examples, the head tilt happens as either an underliner of verbal elements that form the humorous instances or as triggers of a non-serious space, but seem to have even further connotations such as imagination (example [128]) or doubt (example [129]). In both sarcastic utterances (in [128] with the suggestion to start a band and in [129] with the reference to Thirteen's sexual life), this is a trigger of the intentional switch to a pretense space where the interlocutors are being ridiculed. Following Lee and Marsella's suggestion that the head tilt is a mark of pondering, it can be assumed that, in humor, this meaning is exploited to refer to a different interpretation.

Looking at the number of occurrences of head tilts, we see that they represent 17.1% of the total gestures. The distribution of head tilts in the different humor types in the corpus is given in Table 12 below. The total number of instances is given for each type as well as the number of occurrences where the speaker tilted their head on certain elements in the utterance.

Tab. 12: Head tilts in different humor types

Humor type	Total	Head tilts	Relative frequency	Association ratio
Sarcasm	315	137	42%	0.13
Hyper-understanding	95	29	9%	0.03
Sexual humor	57	22	7%	0.02
Misunderstanding	97	22	7%	0.02
Exaggeration	90	21	6%	0.02
Joint fantasy	65	19	6%	0.02
Register humor	57	16	5%	0.02
Tease	53	14	4%	0.01
Insider humor	43	13	4%	0.01
Inter-textual humor	20	8	2%	0.01
Self-glorification	17	7	2%	0.01
Stereotype humor	24	5	2%	0
Situational humor	44	3	1%	0
Anecdote	10	3	1%	0

Humor type	Total	Head tilts	Relative frequency	Association ratio
Irony	7	3	1%	0
Self-mockery	6	1	0%	0
Understatement	6	1	0%	0
Gender humor	10	1	0%	0
Meta-humor	6	1	0%	0
Puns	4	0	0%	0
Parody	11	0	0%	0

As the table shows, 42% of head tilts are used in sarcastic utterances. Sarcasm makes use of different gestures that underline the humorous message, and a head tilt, next to raised eyebrows and frowning, is one of those gestural triggers that are used most frequently. Compared to the other humor types, sarcasm is the type where speakers most frequently tilt their head to gesturally mark the switch from the serious space to the non-serious space. In hyper-understanding (9% of the total occurrences of head tilts), head tilts also occur on certain elements allowing the switch to happen between different interpretations, as also illustrated in the examples above. In sexual humor, speakers also tilt their head (7%) to mark the switch in readings. A total of 7% of head tilts are used with misunderstandings (which can coincide with the idea of doubt expressed above). In exaggeration, head tilts (6%) underline the elements that point to the disproportions given by the speakers to the context at hand, as in example (127) above where Penny's *most significant achievement* is compared to Leonard's high-achieving family. Joint fantasy co-occurs with head tilts (6%), where these gestural elements are used on key aspects of the discourse that make the message clear to the hearers. The same role of underlining is used in register humor, where head tilts represent 5%. of the total. The results are similar to tease (4%) and insider humor (4% of occurrences). The rest of the humor types in Table 12 above do not use head tilts as frequently, with less than 10 occurrences for each. With puns and parody, the speakers do not use head tilts at all.

5.3.2 Head nods

Lee and Marsella (2010, p. 553) consider that people generally nod to show agreement towards what the other person is saying. They also note that sometimes head nods have a rhythmic pattern, with no communicative function whatsoever. Generally speaking, they are associated with "affirmation, intensification,

assumption, and interjections" (idem, p. 554). Similar to the head tilts and the facial expressions discussed above, head nods are also used by speakers in the two television-series to underline a certain part of the speaker's utterance which has an essential role in triggering the humorous reading. For instance, in hyper-understanding, as illustrated below (example [130]), head nods are sometimes used in order to underline the key element that marks the switch to the humorous interpretation. This is also the case in misunderstanding, where the clash between meanings is achieved through a key element that allows a switch in readings.

Consider example (130), from *The Big Bang Theory*, where Sheldon uses a head nod when switching the interpretation of the discourse and thus creating hyper-understanding. The head nod occurs on the key element allowing the switch in interpretation to be made. In this scene, Leonard and Sheldon have picked up Leonard's mom (Beverley) from the airport. On the way back home, Beverley asks Leonard about his relationship status. Just before this scene takes places, Sheldon told Penny (Leonard's girlfriend) that his mother might not approve of her (the exchange in example [127] above). The head nod is underlined:

(130) Beverley: [To Leonard] So, how about you? Are you seeing anyone interesting?
Sheldon: Well, I'm not sure about <u>interesting</u>, but...
Leonard: Not the time, Sheldon.

Fig. 71: Nod when uttering *interesting* (middle)

Hyper-understanding builds on the key element retrieved from Beverley's question about Leonard's dating someone *interesting*. Sheldon 'recycles' the adjective *interesting* with the intention of switching the interpretation. Since Leonard is dating Penny, their neighbor who does not have a scientific/academic background, the implication would be that Penny is not interesting or does not deserve/hold

someone's attention. It is this particular adjective *interesting* that allows the switch to take place, because Sheldon takes advantage of it in order to target Penny. He thus reverses the interpretation, and, from Beverley's implied meaning that someone *interesting* is someone who holds Leonard's attention, Sheldon shifts the meaning to someone *interesting* in general. Consequently, his utterance *I'm not sure about interesting* generalizes the view and Penny cannot be considered as *interesting* in general.

The nod occurs on the key element that allows the shift in interpretations, the adjective *interesting*. This gesture thus turns the focus of the viewers on the key element allowing the shift to happen. The video stills in Figure 71 show Sheldon's nod when uttering the adjective *interesting* referring to Penny. He turns towards Beverley (on his right) when replying because it is her word that is being recycled. Raised eyebrows are also used by Sheldon in this example (shown in the three frames above).

What is striking is that the speaker uses a head nod, which, according to Lee and Marsella (2010) is generally a sign of agreement. In this case, the head nod marks the disagreement and the clash in interpretations. This is why, as a gestural trigger, the head nod serves as pragmatic marker that emphasizes a certain element (in this case, the adjective). It underlines the key element that allows the shift in meanings, from Leonard's particular case to a general meaning, one where Penny is not seen as deserving someone's attention or interest.

The same happens in example (131) below, also from *The Big Bang Theory*, where the nod occurs on the elements allowing the shift to take place. The scene presents a small dispute between Leonard and Sheldon, ending in Sheldon correcting the grammar of Leonard's original sentence. The humorous effect comes from the way the scene is built, where Sheldon manages to turn the tables on Leonard. The nod is underlined:

(131) Leonard: You've destroyed this relationship! And, you want to know what the worst part is? You don't even understand what you did wrong because you can't conceive of something that you are not an expert in!
Sheldon: <u>In which</u> I am not an expert.

Fig. 72: Head nod with *in which* (right)

Similar to example (130) above, hyper-understanding in (131) takes one element from the previous speaker's utterance and uses it to turn the tables on the interlocutor. In this case, it is Leonard's (supposed) grammatical error that triggers hyper-understanding, which is also emphasized by the use of the noun *expert* by Leonard. If the quarrel between them is triggered by Sheldon's behavior and the fact that he is accused of having destroyed Leonard's relationship, the focus is rapidly shifted to the word *expert*. Leonard's use of a preposition at the end of a relative clause (which normative grammar considers an error) leads Sheldon to correct it and thereby belittle Leonard, showing he is an *expert* in everything.

Strikingly similar to example (130), the gestural trigger falls on this key element, which represents the shift of focus from the quarrel to Sheldon's expertise in certain domains. The attention is thus drawn on the parts that highlight this interpretation. The video stills in Figure 72 illustrate Sheldon's nod with this example of hyper-understanding. Compare Sheldon's straight face (left) to the head nod (right). The first frame presents Sheldon's listening to Leonard after the latter finishes his utterance, and the second frame presents the head nod occurring when Sheldon corrects the use of the preposition from Leonard's utterance.

To compare, consider a sarcastic example such as (132) below, from *House M.D.*, where House also nods when pronouncing the core humorous part of his utterance. This humorous instance is built on sarcasm, where House intentionally ridicules Chase's opinion. This instance is built on antithesis, where Chase is being mocked for the opinion he gives, which is not professional. In this particular context, while brainstorming in order to diagnose a patient, Chase's idea does not seem to help the doctors too much. The occurrence of the nod is underlined:

(132) House: Every test is normal. He's artificially raising his red-blood count, so why isn't it raised?
Chase: Maybe his count is raised; maybe what's normal for us is out of whack for him.
House: Can't slip anything by you.

Fig. 73: House uttering *can't* (left) *slip* (middle) *by you* (right)

This example builds on the opposition between what is said and what is meant, more specifically what House says and what is obvious enough for the hearers. His utterance targets Chase whose explanation is not scientific (consider also the language used) and cannot help them diagnose the patient. This context builds on the meaning of the adjective *normal*, first mentioned by House in his first line, and then used by Chase to compare the patient with other people (i.e., *what's normal for us is out of whack for him*). This analogy between the patient and other people does not have any scientific background, which triggers the sarcastic comment made by House. As such, the utterance *can't slip anything by you* is meant to ridicule Chase, including his explanation of the case on which they are working. The implication would be that Chase's careful examination of the case did not leave anything uncovered. This represents the opposite of what House really means because of the incongruity between this unscientific explanation and the mocking praise he addresses to Chase.

The nod House uses goes on the phrase *by you*, which includes Chase as the target of his sarcasm. With this, House emphasizes the role Chase plays in the diagnosing team, and his role in helping them diagnose this particular case. The fact that the gestural trigger occurs with the pronoun *you* further reinforces the importance of having Chase on the team of diagnosticians. With this, House also sarcastically emphasizes that Chase is the strongest element on the team, since it is his scrutiny on the case that brings them the answer.

Compare the first frame with the other two frames in Figure 73, where the nod occurs explicitly on the pronoun *you*, which targets Chase. The nod adds to the humorous effect of the instance above since it puts the focus of attention on Chase. Note also the use of frowning in this same example; frowning also has a role of adding to the humorous effect of the context. Facial expressions and head tilts generally combine in these two television-series because the speakers constantly point at elements in their discourse that aid the hearers to interpret their humorous messages.

One last example is (133) below, also from *House M.D.* In this scene, the team discusses a patient's case for a diagnosis. This particular patient has told Cameron about the different sexual games that he and his wife play. While the team starts debating this, Cameron's comment makes everyone stare at her and results in House's sarcastic comment combined with sexual humor. The head nod is underlined below:

(133) Cameron: If you ask me, if two people really trust each other, a threesome once every seven years might actually help a marriage.
[Everyone stares at her.]
House: Okay, I say we stop the DDx[59] and <u>discuss</u> that comment.

Fig. 74: Nod appears when uttering *discuss* (right)

Sarcasm and sexual humor are here built on what Cameron says and the reactions the other male doctors have to her remark. The fact that they are all surprised, looking at her in amazement allows House to add sarcasm to the context. Since no one reacts to her comment, House shifts the focus from the diagnosis to Cameron's comment and sarcastically suggests to *stop the DDx and discuss that comment*. Sarcasm here targets Cameron as well as the other members of the team

59 A DDx is an abbreviation which stands for 'differential diagnosis.'

who stare at her in amazement. The incongruity is created through the suggestion that they should stop the medical discussion and talk about sexual activities instead.

See Figure 74 for the head nod used by House to point at this shift from the patient's diagnosis to Cameron's comment. The head nod occurs in the third frame (although quite difficult to detect in the video stills above). Frowning is also used at the beginning of the suggestion as well as with the verb *discuss*, which marks the non-seriousness of his remark. Frowning at the beginning marks the non-seriousness of the entire remark, while the head nod in the third frame indicates the emphasis on the verb *discuss*.

In all these examples, head nods are used on specific elements from the discourse that are fundamental for the understanding of the humorous implications. In both examples of hyper-understanding above, the head nod was used on the key element allowing the switch to happen (the adjective *interesting* and the preposition *in*). With sarcasm, the head nod also marks the target which is at the core of the sarcastic remark, being used on the pronoun *you* in example (132); in example (133), the head nod underlines the importance of Cameron's comment by shifting the focus from the diagnosis to her sexual remark.

Turning again to the quantitative analysis, head nods represent 19.5% of the total gestural annotations. The occurrence of head nods in the various humor types present in the study is given in Table 13 below. To compare, the total number of instances are given, as well as the number of instances where nods were used by speakers.

Tab. 13: Occurrence of nods with humor types

Humor type	Total	Head nods	Relative frequency	Association ratio
Sarcasm	315	113	34%	0.11
Hyper-understanding	95	35	11%	0.03
Exaggeration	90	27	8%	0.03
Misunderstanding	97	25	8%	0.02
Joint fantasy	65	23	7%	0.02
Sexual humor	57	21	6%	0.02
Register humor	57	17	5%	0.02
Tease	53	15	5%	0.01
Inter-textual	20	9	3%	0.01
Insider humor	43	7	2%	0.01

Humor type	Total	Head nods	Relative frequency	Association ratio
Anecdote	10	6	2%	0.01
Self-glorification	17	6	2%	0.01
Stereotype humor	24	5	2%	0
Situational humor	44	5	2%	0
Self-mockery	6	3	1%	0
Understatement	6	3	1%	0
Gender humor	10	3	1%	0
Parody	11	3	1%	0
Irony	7	2	1%	0
Puns	4	2	1%	0
Meta-humor	6	1	0%	0
TOTAL	1037	331	100%	0.31

Head nods are used in all the humor types present in the study. They are frequently used with sarcasm (34% of total occurrences), hyper-understanding (11%), exaggeration (8%), misunderstanding (8%), joint fantasy (7%), and sexual humor (6%). Head nods appear with register humor (5%) and teasing (5%) as well. For the rest of the humor types listed above, head nods are employed by speakers in less than 10 utterances for each. In these instances, nods are used to underline certain elements in the speakers' utterances that play an essential role for the understanding of the humorous message; they are thus considered gestural triggers in humor.

5.3.3 Combined head movements

There are also cases where these two gestural triggers described above are combined. Consider the example below, from *House M.D.*, where a head tilt and a head nod are used in the same humorous utterance. The doctors are discussing the case of an inmate (Clarence) who has killed several people. Foreman's reply is sarcastic, and he uses both a head tilt at the beginning as well as a nod at the end of it. These two gestures trigger the switch of the discourse base space to a pretense, non-serious space. The head tilt appears in bold, the nod, in italics.

(134) House: He kills inmate number one. Why?
Foreman: Guy attacked him first.
House: Revenge. Who'd he kill after that?
Chase: Prison guard.
House: I've got a file full of abuse complaints. Probably been kicking Clarence's ass for months.
Foreman: Clarence is just **ridding the world** of *bad seeds*.

Sarcasm here is built on a metaphor (THE WORLD IS A PLANT) where the *bad seeds* refer to certain people and their genes. In the case of the inmate killing people who have wronged him, they become the *bad seeds* in the world. Based on the idea of right and wrong, the metaphor construes on the same comparison that there are good seeds and bad seeds. This meaning is incongruous with the whole scenario, since the doctors are discussing the inmate's murders, which would be categorized as wrong doings. Hence, Foreman uses sarcasm to categorize Clarence's actions. It is also based on an exaggeration, hence the disproportionate dimensions (Haverkate, 1990) of Clarence's actions. By killing certain people (two of the victims are listed in example [134]), Clarence *is ridding the world* of these bad individuals. The view is generalized to include the whole world, not just the prison where Clarence did the killings. This also adds to the sarcasm that targets Clarence for his actions, but also includes House in the sarcastic comment, because of the explanations he gives. The utterance draws from House's search for reasons (i.e., House's explanation *probably been kicking Clarence's ass for months*). The pretense space builds on all the elements given in the context, drawing from all the exaggerated implications of House's speech as well as Clarence's actions.

As shown in the video stills in Figures 75 and 76, Foreman uses a number of facial expressions (raised eyebrows, for instance) and gestures in order to get across his sarcastic comment. We will only focus on the head tilt and the head nod at the beginning and end of his utterance, both functioning as gestural triggers for the humorous message. Compare the frames in Figure 75, where Foreman uses a head tilt when uttering *ridding the world*. Foreman's gaze is also taken into account, since he is looking straight at House when saying this. In Figure 76, he is not looking at House anymore, but at his colleague Chase (on his left), also present in the scene. The head nod occurs in the last frames, when building the metaphor *bad seeds*. The two gestures used here emphasize both his sarcasm and the exaggeration; they point out at first the hyperbole he uses (the entire world) as well as the metaphor (*bad seeds*). Looking at House directly when using the exaggeration *ridding the world* reinforces the idea that it builds on how House

explains Clarence's actions. Foreman's utterance is a reply to House's implicature that Clarence had reasons to kill certain people, as if killing people can be justified. The change of gaze direction and the nod while looking at Chase might be as if to integrate him in the discourse, while simultaneously making it obvious that he is mocking House.

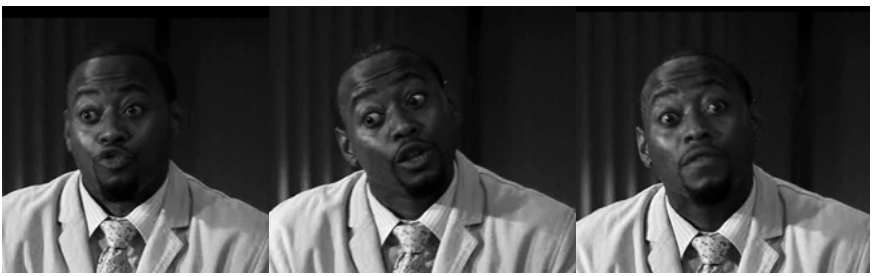

Fig. 75: Foreman using a head tilt while uttering *ridding the world* (middle and right)

Fig. 76: Foreman nodding while uttering *bad seeds* (middle and right)

Another example which combines these two gestures is (135) below, also from *House M.D.* In this scene, House was asked to do performance reviews of his team members, which he does not want to do. When asked about it by Foreman, he uses sarcasm and hyper-understanding to mock him. We will focus on the sarcasm in House's last reply. The head tilt appears in bold while the head nod is in italics:

(135) Foreman: Reviews make a difference. People have to listen, so they have to learn.
House: I don't think that the right time to tell the dog not to pee on the rug is semi-annually.
Foreman: You don't want to do the paperwork.
House: *I am concerned* about ***the rainforest.***

It is Foreman's word *paperwork* on which both sarcasm and hyper-understanding are built. More particularly, hyper-understanding is triggered by the word *paper*, which metonymically refers to the problems that the world is facing today, i.e., deforestation. Doing the paperwork would thus imply using paper, and House takes advantage of Foreman's choice of words to shift the interpretation to a bigger problem that the world is facing. The so-called concern he addresses towards the rainforest is in fact a sarcastic remark which targets Foreman and also modern society and its interests.

As shown below, the concern uttered by House co-occurs with a nod gesture, while the word *rainforest* is said while his head is tilted to the right, but also while nodding. *I am concerned* would mark the core sarcastic part of the utterance as well as an agreement (in this case exploited), while for the word *rainforest* the gestural attitude is changed since it also represents hyper-understanding, based on Foreman's *paperwork* trigger.

Fig. 77: Nod with *I am concerned* (middle and right)

Fig. 78: Head tilt with *rainforest* (middle and right)

Based on an experimental study, Lee and Marsella's (2010) consider that head nods are more frequently used at the beginning of sentences, not at the end. It seems that the choice of using a head nod is influenced by the role the verbal element plays in the humorous message. For example, in both (132) and (134), head nods are used at the end of the utterances to intensify certain verbal elements; in (132) the phrase *by you* marks the pronoun explicitly emphasizing Chase as a target of House's sarcasm and, in (134), the nod occurs on the phrase *bad seeds*, which also sarcastically ridicules Clarence's actions. In (130), the head nod used with the adjective *interesting* can also have the role of an intensifier, where it underlines its importance for the change of meanings in the humorous interpretation. Consequently, these head nods could be considered as intensifiers for the elements with which they are used. In the case of (135), the head nod is used with the phrase *I am concerned* and could emphasize the sarcastic affirmation. It is thus used at the beginning of the sentence (Lee & Marsella, 2010), although the gestural behavior changes and a head tilt is still used at the end with the sarcastic reference to the *rainforest*. In any case, the occurrence of head nods appears to depend solely on the relevance of these elements for the humorous message the speakers intend to convey.

All the gestural triggers discussed above, facial expressions as well as head tilts and nods, are generally used in combination and rarely alone. Sometimes raised eyebrows are used in combination with frowning (which either precedes or follows them); it is also the case of head tilts, as seen above: sometimes they are combined with nods and quite often facial expressions also come into play. It is rare that speakers only use one of these gestural triggers to underline parts of their speech. These gestures are used on certain words or phrases which play a fundamental role in the interpretation of humor as such. They appear strategically on just certain parts of their utterance, which deserve more attention than

others since they are the key to humorous meanings. For instance, in hyper-understanding, speakers will usually perform gestures on the key elements that allow the switch in meaning; with sarcasm, they will strategically use gestures and facial expressions on elements that define the central part in the sarcastic utterance.

5.4 Sample contrastive study

The quantitative analysis has shown that facial expressions (particularly raised eyebrows) and head movements occur quite frequently with humorous expressions, in particular with sarcasm. A crucial question that remains is whether this is because they are typical of such humorous exchanges, in which case they could be regarded as humor signaling elements, or whether they are communicative expressions of a more general sort that occur equally frequently in non-humorous utterances. The frequencies in the data would then merely be a logical outcome of the overall usage of these gestural expressions.

In order to answer this question, a small-scale study was carried out in which we compare the above frequencies to those of the same gestures occurring in non-humorous instances of humor. To do this, two episodes were randomly selected, one from *House M.D.* and one from *The Big Bang Theory*, for which all the occurrences of raised eyebrows, frowning, head tilts, and head nods have been annotated, regardless of whether they occurred in humorous or non-humorous exchanges. Each of them will be explained in more detail below. The contrast between the uses of these gestures in *The Big Bang Theory* and *House M.D.* is striking, but this may be due to the fact that an episode of *House M.D.* lasts longer compared to an episode of *The Big Bang Theory* and that the latter includes more humorous instances than the former, since it is a sitcom. It is thus normal to have more uses of these gestures in non-humorous instances in *House M.D.*

In the randomly selected episode from *The Big Bang Theory* speakers raise their eyebrows 101 times, out of which this happened 50 times while using humor. In *House M.D.*, the speakers raised their eyebrows 432 times, out of which only 92 times while using humor. The results are given in Table 14 below. This accounts for 27% occurrences of raised eyebrows with humor compared to 73% of non-humorous utterances.

Tab. 14: Raised eyebrows in the sample contrastive study

	The Big Bang Theory	House M.D.	Total
With humor	50	92	142
	49.5 %	21.3%	26.6%
Without humor	51	340	391
	50.5%	78.7%	73.4%
TOTAL	101	432	533
	100%	100%	100%

Raised eyebrows are frequently used facial expressions that serve certain roles in the understanding of the speakers' messages, be they humorous or not. Ekman's scheme given above (Section 5.1), indicating that they are used for a quite wide range of human emotions, seems essentially correct; this also explains their frequent use in the two television series. These results also confirm that raised eyebrows do not predict humor, as opposed to, for example, laughter and smiling, as pointed out by Attardo *et al.* (2013). If speakers raise their eyebrows, this does not necessarily mean that humor is happening or is about to happen. Nevertheless, when comparing the use of raised eyebrows in humor and in the different humor types, it appears that they are well-suited to play an important role in the understanding of a humorous intention, as they target the viewers' attention to the elements that trigger the humorous interpretation.

Similar to what has been done for raised eyebrows, we have considered the occurrence of frowning with both humorous and non-humorous instances in the same two random episodes from *House M.D.* and *The Big Bang Theory*. The results from the sample episodes are given in Table 15 below. The speakers frown 47 times in *The Big Bang Theory* and 95 times in *House M.D.* Only 37.3% of these occurrences happen with humor, while 62.7% of frowning happens in non-humorous utterances.

Tab. 15: Frowning in the sample contrastive study

	The Big Bang Theory	House M.D.	Total
With humor	11	42	53
	23.4 %	44.2%	37.3%
Without humor	36	53	89
	76.6%	55.8%	62.7%
TOTAL	47	95	142
	100%	100%	100%

These results show that frowning, just as raised eyebrows, is frequently employed by speakers to signal their humorous intentions. However, frowning and raised eyebrows are used differently with certain humor types, as seen from the results presented in Section 5.2 above.

Comparable to the facial expressions discussed above, the same sample episodes have also been annotated to establish the ratio of head tilts for both non-humorous and humorous exchanges. The results for both samples are given in Table 16 below. In *The Big Bang Theory* sample, speakers tilt their head 44 times, while in *House M.D.* they use a head tilt 121 times. The results show that 43% of these head tilts are used humorously, whereas 57% of them are used in non-humorous contexts.

Tab. 16: Head tilts in the sample contrastive study

	The Big Bang Theory	House M.D.	Total
With humor	27	44	71
	61.3 %	36.3%	43.0%
Without humor	17	77	94
	38.7%	63.7%	57.0%
TOTAL	44	121	165
	100%	100%	100%

The results for head nods are given in Table 17 below. In *The Big Bang Theory*, speakers used a head nod 65 times, whereas in *House M.D.* they used 226 head nods. This amount to 27.4% head nods in humorous contexts as opposed to 72.6% head nods in non-humorous discourse.

Tab. 17: Head nods in the sample contrastive study

	The Big Bang Theory	House M.D.	Total
With humor	48	32	80
	73.8%	14.1%	27.4%
Without humor	17	194	211
	26.2%	85.9%	72.6%
TOTAL	65	226	291
	100%	100%	100%

All these results point to the fact that these facial expressions and head movements are frequently used by speakers in the two television-series. They have different functions in the discourse: they are either expressions of human emotions or they have semantic functions, such as affirmation for head nods or disagreement for frowning in the first case, emphasis and intensification in the second case. These gestures are used in humor for the same purpose. The fundamental question that this raises is whether they are thus semantic or pragmatic, or perhaps both and whether there is a more specific meaning underlying their use in humor. This will be discussed in more detail in the next section.

5.5 The semantic-pragmatic nature of gestures

Lee and Marsella (2010, p. 553) say that "even if we know all the individual factors that can cause the display of nonverbal behaviors, as more and more factors are added, it becomes hard to specify how all these factors contribute to the myriad of behaviors generated." This observation points to the difficulty in understanding all the implications and meanings these gestures generate in humor analysis. As already pointed out in an earlier publication (Tabacaru & Lemmens, 2014), on the basis of Ekman's perspective as a starting point for the analysis, two hypotheses can be formulated regarding the role of facial expressions: one as pragmatic, the other as semantic.

The first hypothesis, which lies in line with the present claim, sees these facial expressions as *pragmatic* markers of humor, as also suggested by Ekman's term *underliner*. This does not mean, however, that when people raise their eyebrows, humor is necessarily happening or about to happen. In other words, these facial expressions and head movements do not predict humor. They would simply be pragmatic markers, highlighting the humorous trigger (a certain attitude or word), as part of the expression of a speaker's attitude (just like tone of

voice) and thus helping the hearer to understand the intended meaning. These gestures come as 'helpers' toward the intended interpretation, but it does not work both ways, i.e., people raising their eyebrows, frowning, or using head movements does not necessarily mean that they are using humor. The fact that these gestures co-occur with certain words or larger parts of a speaker's utterance means they may be used on the central part of a humorous message, where the hearers are alerted to change to a pretense, non-serious space. The examples illustrated above show that the elements on which these gestures occur are essential for the understanding of the humorous intention of the speaker.

The second hypothesis takes a more *semantic* perspective and sees these gestures as having a specific meaning as expressions of human emotions. Raised eyebrows such as 1+2 (see Ekman's diagram above) can be said to be an expression of surprise or interest (as asserted by Ekman himself). Its co-occurrence with humor can be accounted for by seeing humor in terms of surprise (Janko, 1984; Attardo, 1994; Perks, 2012). Research in the field of humor reveals that speakers indeed manipulate the discourse space in order to surprise the hearers with new readings (cf. Raskin, 1985; Brône & Feyaerts, 2003; Yus, 2003; Tabacaru, 2015; Tabacaru & Feyaerts, 2016, etc.). Clearly, it would make sense to assume that speakers use the element of surprise when they use humor. However, while raised eyebrows may indicate surprise, in humorous exchanges such as the ones analyzed here, it is the hearer that would be surprised, whereas in these cases it is the speaker (exploiting the surprise) who raises the eyebrows, not the hearer. This poses a problem for the semantic view on raised eyebrows. For frowning, it might still hold, as its meaning can be that of disagreement, as has been indeed illustrated in certain examples above; via frowning, the speaker highlights the disagreement between two different interpretations given to the same utterance/context. In other words, the speaker frowns to dismiss the interlocutor's intended meaning and to substitute it with a humorous one. As for head movements, head nods could express agreement with the speaker, although this idea is exploited in humorous utterances. Sometimes, speakers will nod while refuting the interlocutor's idea.

In order to test the semantic or the pragmatic hypothesis, two additional examples are discussed below, both with raised eyebrows, one from a humorous exchange and one from a non-humorous exchange.

In example (136) below, taken from *The Big Bang Theory*, the speaker (Leonard) raises his eyebrows in speech. Leonard and Penny are standing in front of their apartment doors; they have just had dinner together, and Penny wonders about the meaning of this encounter between just the two of them. The underlined words mark the occurrence of raised eyebrows:

(136) Penny: Was this supposed to be a date?
[...]
Leonard: When I take a girl on a date, and I do, she knows she's been dated. Capital D. Bold face, underline, day-ted.

Fig. 79: Raised eyebrows when uttering *I do* (right)

Fig. 80: Raised eyebrows when uttering Capital D (middle and right)

The occurrence of raised eyebrows is also consistent with the pauses Leonard makes in discourse. For both occurrences there are pauses before and after speech (marked by the commas in *and I do*, and between full stops in *Capital D*). This shows that raised eyebrows have the role of underlining the speaker's intended message (Ekman, 1979) since they emphasize certain elements and not others, with the intention of making these elements more prominent for the hearer. Moreover, in both cases, raised eyebrows emphasize certain implications and meanings in Leonard's utterance. In the first case (i.e., *and I do*), raised eyebrows occur with the pronoun and the verb (i.e., *I do*) both of which have the role of emphasis: Leonard emphasizes the fact that he takes girls out on dates. In the second case (i.e., *Capital D*) this marks the beginning of the enumeration that emphasizes a date with Leonard. As such, raised eyebrows occur with the first

element of the enumeration, but are dropped afterwards, when Leonard continues to enumerate 'spellings' of a date with him. This is again consistent with underlining the idea that he is about to start, namely the enumeration of elements that emphasize the importance of a date with Leonard. The video stills above show the occurrence of raised eyebrows in Leonard's speech.

This instance has been annotated as exaggeration and register humor (bringing in elements from an unrelated domain, in this case, that of text formatting), because the humorous interpretation arises from the way Leonard presents a date with him. Two distinct domains (text formatting and dating) intertwine. In any case, raised eyebrows have the role of accentuating these words and underline the way Leonard wants Penny to see a usual date with him. It is the gestural trigger of raised eyebrows that generates the humorous interpretations in both exaggeration and register humor, since they occur on the central humorous part in Leonard's discourse.

Let us also consider a gestural trigger with a non-humorous instance, taken from the corpus, in order to compare their role in speech. In this scene, taken from *House M.D.*, raised eyebrows occur with a question, which is consistent with Ekman's (1979) findings (place of occurrence is underlined). In this example, Foreman asks a question to which he already knows the answer, in order to prove a point:

(137) Foreman: This guy has been injecting himself <u>how many times</u> a day?
All it'd take is <u>one slip of the needle to cause an air embolism.</u>

In this example, raised eyebrows occur with larger chunks of the speaker's utterance, first with a question and then with the reasoning behind it (the actual reason why he asked the question in the first place). This is consistent with Ekman's (1979) perspective of seeing raised eyebrows as punctuating questions. The video stills below show how Foreman raises his eyebrows in these two cases. Compare the baseline (Figure 81) to the other three frames in Figure 82 (raised eyebrows).

Fig. 81: Neutral face in example (137)

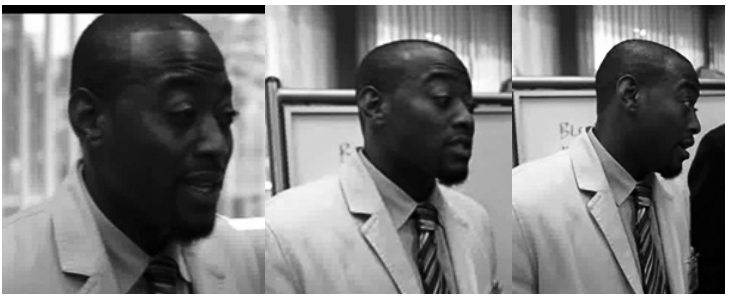

Fig. 82: Raised eyebrows for *many* (left), [...] *one* (middle), [...] *needle* (right)

In the example above, Foreman starts raising his eyebrows when uttering *how many times*, which underlines the role of facial expressions as marking the interrogative. He raises his eyebrows again when giving the reason behind his rhetorical question and explaining the rationale, which would mark an explanation in this case. By raising his eyebrows, Foreman does not trigger any humorous interpretation, but only highlights important parts of his speech that help the interlocutors interpret his message.

Then, we can safely assume that in non-humorous utterances, such as (137) above, the speaker uses raised eyebrows to underline (Ekman, 1979) parts of his speech, just like prosodic features (stress on certain words in the utterance or a change of nucleus placement). The speaker may use verbal or non-verbal cues in order to stress important chunks of their speech and make them more salient to the hearers. But, in humorous instances, such as (136) above, raised eyebrows underline the humorous interpretation of the utterance. They trigger the humorous perspective. Firstly, when raising the eyebrows when saying *I do*, the humorous exaggeration is underlined, since it points out the importance of a date with

Leonard (serving the same role as the emphasis created by Leonard's *I do*). Secondly, when the speaker raises his eyebrows while uttering *Capital D*, it also triggers the interpretation of what is to follow: the enumeration that links the two domains together (*boldface, underline, day-ted*). By stressing the first element of the enumeration, he makes sure that he alerts the viewers of the salience of this part for the understanding of the discourse.

Given that the present data concern staged interactions, where speakers know beforehand that they are going to use humor and might therefore exaggerate their reactions, the analysis of facial expressions as expressing the element of surprise (which happens when discourse moves to a pretense space) may still be valid. Frowning can still be used as disagreement, and also head nods as indicating some kind of agreement with the interlocutor. The question remains open as to how similar gestures are used with spontaneous humor and whether both of these hypotheses would then still apply.

While these two hypotheses are not necessarily mutually exclusive, we are more inclined toward the pragmatic analysis of seeing these facial expressions and head movements as gestural triggers of humorous inferences. The fact that speakers change their gestures when a salient element is uttered confirms that a pragmatic viewpoint is more relevant in the analysis of humor. However, these gestures may not have a fixed meaning and they can switch almost unpredictably. What is striking is that speakers use these gestures to highlight elements in their discourse that guide hearers/viewers to the humorous interpretation. There are also certain tendencies, as illustrated above, as certain gestures occur more often with certain humor types, which also gives them a more semantic meaning.

5.6 Conclusion

In this chapter, we explored the use of certain gestures in humorous discourse focusing on facial expressions (raised eyebrows and frowning) and head movements (head tilts and head nods) which are the most frequent in the corpus. On the basis of several examples, it was shown that these elements are ***gestural triggers*** that point at important elements in the speakers' utterance that imply a switch of the interpretation from a serious space to a non-serious one. In other words, they are pragmatic elements guiding the hearer to the correct inference.

However, these facial displays and head movements can also be considered as having a semantic function in different contexts. Intersubjectivity is a fundamental factor in interactional humor because it operates the common ground and establishes a layered meaning structure. These elements have an essential role for how the speakers manage to make their intentions clear to the viewers. The

speakers adopt certain behaviors to make their meanings more apparent to the hearers.

Clearly, as with other types of communication, humor is not achieved solely through verbal elements. It represents the sum of different behaviors and attitudes that speakers display in order to make the message understood by the hearers. The research on multimodal elements that are part of the discourse leads to more insight into how humor is built and interpreted in certain contexts. This study is constrained in that it looks at staged interaction only; further research on spontaneous uses of such facial expressions and head movements is still lacking and should be included to lead to a better understanding of the role that gestures play in humor.

6 Conclusions and prospects

Humor has since long intrigued linguists and philosophers and has been notably elusive to analysis. This book is an attempt to provide a more tangible analysis of the creation and understanding of humorous utterances from a cognitive perspective. This goal has been approached from a theoretical and an empirical point of view.

From the theoretical perspective, the existing analyses of humor have been presented both in linguistics and beyond. More particularly, the idea of incongruity is at the center of several theories on humor, which are explained in Chapter 2 (such as the script-opposition model presented by Raskin, 1985, the general theory of verbal humor discussed by Attardo & Raskin, 1991, or Coulson *et al.*'s [2006] theory of frame-shifting). Since humor exploits speakers' expectations, incongruity appears to be a central element in the creation of humorous meanings. More importantly, these approaches explain how inferences are built in discourse, ideas which have been relevant for this discussion. Regarding cognitive theories, certain theories apply to discourse in general, but also to humor analysis: Fillmore's frames, Fauconnier's mental spaces, Langacker's reference-point constructions, and Croft and Cruse's construal operations. In regards to humor, Coulson's space-structuring model as well as Brône's layered-mental space configuration provide new approaches to humor in interaction. These models provide more insight on the different layers of meaning that are created through humor, based on the creativity of language and of humor in context.

From the empirical perspective, this volume presents a new and better method for humor analysis in general, bringing together the various types of humor discussed in the literature as well as a multimodal approach to this type of analysis. Using the annotation tool ELAN, both verbal and non-verbal expressions of humor can be considered. This method proves useful since it allows different comparisons and statistics to be compiled more easily, focusing on sarcasm as the most frequently used humor type in the corpus (36.6% of the total data). Most of all, it allows a detailed analysis of sarcasm (Chapter 4), which focuses on the different linguistic realizations underlying it. Unlike other theories that have approached the phenomenon of sarcasm, this is a more systematic approach, where the linguistic realizations of this humor type would be taken into account as well: antithesis, repetition, explicitation, metonymy, metaphor, shift of focus, reasoning, and rhetorical questions. The results show that sarcasm often builds on metonymy (23.4% of the sarcastic utterances), which is the most frequently used mechanism in the corpus. This then is an important contribution that links sarcasm and metonymy. It confirms more recent analyses that have

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argued that metonymy occurs more frequently than metaphor (for example, Koch, 1999). This perspective reveals the complex process of meaning construction in sarcasm, which depends on inferences and assumptions that the speakers make. It also exploits common ground between interlocutors to reverse the serious space with a non-serious one. Sarcasm has thus been defined as a pretense (Clark & Gerrig, 1984; Kihara, 2005) incorporating different mental spaces (Coulson, 2005b; Brône, 2008).

This volume highlights the fundamental role of facial expressions (raised eyebrows and frowning) and head movements (head tilts and head nods) in the understanding of humorous instances on the one side and the process of meaning construction on the other. These gestural triggers, much like the triggers proposed in Gricean models for pragmatic inferencing, are essential for the interpretation of humorous instances, since they are used on strategic elements that mark the shift to the non-serious space. The semantic and pragmatic functions these gestural triggers play are numerous: their pragmatic functions imply a trigger to the non-serious space by underlining the core humorous part of a speaker's utterance, and their semantic functions imply they are expressions of human emotions. The analysis shows they are consistent in sarcasm, since speakers frequently use these four gestures. They are also used in the other humor types present in the corpus with the same functions. Speakers constantly use such gestures to alert the hearers to their humorous intentions which will trigger the pretense of their utterances.

The empirical analysis confirms the three hypotheses at the beginning of this study:

1) Humor in interaction will exploit speakers' expectations and will depend on constant intersubjectivity between interlocutors. They will refer to the common ground between them to create their humorous meanings.
2) Speakers will use certain gestures to alert the hearers/viewers of their humorous intentions. This is in line with more recent approaches to humor, analyzing the role of prosody in humorous utterances and which have discussed a change in speakers' intonation when using irony or sarcasm (Rockwell, 2000; Boxer, 2002; Cheang & Pell, 2009).
3) Speakers will use gestures to point out important parts of their speech, which are fundamental in the process of meaning construction and interpretation.

This study has also underlined the necessity of finding new and improved methods for the analysis of humor in interaction. The perspective of humor in interaction offers insight that is not possible in the case of jokes or humor outside of a certain context. Speakers' interaction depends on intersubjectivity and on a

constant process of meaning coordination which allows exploiting certain expectations and norms. Their humorous intentions are made clear with the use of gestures and prosodic elements which focus the attention on elements that bear the core humorous part of an utterance. Humor has to be seen on multiple semiotic layers of interaction in order to link all the associations and inferences the interlocutors make. By looking at such a large corpus of examples, different humorous techniques are encountered, which can be applied to the techniques used in the two television series analyzed here. Comparisons can thus be made which show clearer results on how humor is used and created in discourse.

The methodology and data analysis presented in this book open up new avenues for further research of which the two most important ones are (i) the extension to spontaneous humor, and (ii) the extension to other gestures.

Firstly, the method and results presented here have been applied to staged humor; it deserves to be investigated to what extent they apply to instances of spontaneous humor as well. For example, the taxonomy of sarcastic utterances should be tested on spontaneous uses of humor to investigate if interlocutors build their humorous implications in everyday talk in a similar way. Although the results of the two television series belonging to two different genres are quite consistent with each other, where the same humor types and linguistic mechanisms underlie humorous meanings, the question is still open as to what extent these phenomena are used spontaneously by speakers. Similar questions pertain to the use of facial expressions and head movements that observed in staged interactions: do they occur in spontaneous humor as well? The results from this study lead us to believe they do; while actors are obviously aware of where the humor occurs and are professionals when it comes to techniques for conveying this, it is unlikely that such subtle expressions all be staged, particularly in view of their perfect alignment with the core elements in the humorous expression. This suggests that they are part of more general communicative strategies that will also be exploited in spontaneous speech. What can be expected to be different is the frequency with which such non-verbal expressions occur, as they may be expected to be lower in spontaneous interactions, where interlocutors are less focused on conveying 'just the right expression'.

A second area where the present study should be expanded concerns precisely these non-verbal elements. Although the research on humor carried out so far has integrated prosodic elements in humor analysis (Pickering *et al.*, 2009) and started to look at facial expressions and head tilts, much ground still needs to be covered concerning gesture analysis. The results have clearly demonstrated the importance of some of these elements in the analysis of speakers' behavior since they serve as triggers, alerting the hearers to their humorous messages.

Future research should include other gestures in the analysis of such interactions. This includes manual gestures as well as gaze and posture; (hand) beats could play an important role when it comes to spontaneous humor. The results of the study lead us to argue that such an all-encompassing analysis, which considers all types of verbal and non-verbal elements of communication, is essential to account for humor mechanisms in speech (both spontaneous and less spontaneous).

There is also considerable ground to be covered on the boundaries between these processes. The fundamental question to be answered then, a point also raised by Brône (2012), is how a mental process (such as metaphor, for instance) differ from humor. Such processes are very similar because they are created through mapping between different mental spaces and through the process of layering. As can be gathered from the discussion above, many questions remain to be answered with regard to the mechanisms used in humor, how to analyze them and to what extent they are specific to humor or the mere outcome of general discourse principles.

While the present study needs to be augmented in various ways, we believe that its method is empirically solid to have shown the relevance of a detailed analysis of these humor strategies, incorporating non-verbal elements as well. In the long run, it may turn out that these humor strategies are fundamentally no different than other mechanisms we use in language and discourse. This would merely confirm the need for an all-encompassing model of communication, language, and humor, revealing what makes us human.

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Index

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