Wh-exclamatives in Catalan

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Bienni 2002-04

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15 de desembre de 2006

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Acknowledgements

This thesis wouldn't have been possible without the contribution of two wonderful linguists, my supervisors Xavier Villalba and Louise McNally, who devoted many hours commenting on my ideas, reading my drafts and kindly listening to my existential doubts. I can't tell how much I've learned from them and how lucky I am to have them as supervisors. Xavier was beside me since the beginning and all along the way, he was extremely supportive and generous with his time, and helped me cope with an MA thesis and a PhD. thesis; and Louise broadened my view by introducing me to the exciting world of semantics, gave me very valuable advice, and encouraged me to improve my work. Another very special mention goes to Joana Rosselló, who was my first generative grammar teacher, took me to reading groups when I could barely understand what I was supposed to read, and suggested me that I could work on exclamatives without knowing that this research would lead me far away from where I started. I can't thank her enough for dragging me into theoretical linguistics.

I would also like to refer to my first friends at the Department of General Linguistics of the Universitat de Barcelona, whom I have always admired as linguists: Eva Monrós, Víctor Acedo and Jordi Fortuny. They are all part of my five years of happiness at the Department, along with the rest of the crew, who were very easy to get along with and with whom I participated in reading groups, invented nicknames, attended never-ending meetings and took part in exciting fieldwork sessions. I'd like to thank Josep Quer, who always showed interest in my thesis, and gave me my first semantics book and the first papers I read on exclamatives. I am indebted to Laura Alonso, who taught a tutorial on the wonders of Latex, assessed me on how to use it to write my thesis and answered my S.O.S every time I needed help. Another *thank you* goes to Mònica Benet and Joan Castellví for caring about the students and for saving us from bureaucracy.

I am most grateful to Maribel Romero for giving me very interesting feedback and many

ideas on how to deal with the data I had come up with; to Ivano Caponigro for discussing my analysis and commenting on data from Italian; to Raffaella Zanuttini for listening to my ideas and making interesting suggestions; to Gennaro Chierchia for answering my doubts about factivity and scalar implicatures; to Laia Mayol for our googletalk conversations about exclamatives, and also to the audiences of Sinn und Bedeutung 11 and the Workshop on Gradability Phenomena held at the Universitat Pompeu Fabra for their valuable comments.

In these years as a graduate student, I benefited from seminars, talks and discussions organized by the Grup de Gramàtica Teòrica at the Universitat Autònoma de Barcelona and the Universitat Pompeu Fabra, which were an opportunity to come into contact with great theoretical linguists, including my current supervisors. Also, in my memory I will always cherish the past four summers I spent in Düsseldorf, Germany (2002), Lublin, Poland (2003), Cluj, Romania (2004) and Cambridge, MA (2005). Attending the LSA Summer Institutes and the Eastern Generative Grammar Summer Schools has been a privilege that I've taken good advantage of. I profited from their very inspiring courses and I am thankful for the good friends I made there and for the wonderful opportunities I had to exchange ideas with students and scholars.

Finally, I am particularly grateful to my friends at Conant Hall Beste Yolcu, Li-Jen Shih, Yuka Hayashi, Sanae Tamura, Yoshihiko Asao and Tamami Shimada, and to Liza Sitar and Nfanli Faty, who had the patience to answer my questions about how exclamatives behave in Turkish, Chinese, Japanese, Slovenian and Mandinka.

Chapter 1

Introduction

1.1 Purposes of this thesis

This thesis has as its main goal to characterize *wh*-exclamatives in Catalan. By *characterize* I mean to provide an account for their behavior in terms of their syntax, semantics and pragmatics. In doing so, a definition of what counts as an exclamative will have to be proposed, one which highlights its status as a type of clause on its own. One effect of pursuing this goal will be to challenge the properties that exclamatives have been assumed to manifest.

Exclamatives have been paid little attention so far in the theoretical linguistics literature, and it is not clear yet whether they constitute a universal type of clause, whether they need to include a *wh*-element or whether emphatic intonation does the same job, or whether any *wh*-interrogative that does not work as a question can be considered an exclamative. These are only a few issues that can be raised concerning this type of clause and which still needs to be studied in depth. Given the degree of uncertainty regarding their nature, it seemed appropriate to approach exclamatives from various properties. Once the responsibility of their properties can be attributed to either syntax, semantics or pragmatics, a more specific analysis can be considered.

1.2 Object of study

Among the sentences that are purported to be part of the set of exclamative clauses in Catalan, I will focus on two particular cases, which are the following:

(1) a. Que alt que és en Pau!
         how tall that is the Paul
         'How tall Pau is!'

     b. Quin pastís tan dolç que ha   fet   en Ferran!
         what cake   so   sweet that AUX.he done the Ferran
         'What a sweet cake Ferran made!' [1]

Notice that they are both *wh*-clauses, they both contain the complementizer *que* between the *wh*-phrase and the verb, they both involve subject-verb inversion and they both include a degree phrase (DegP) in the left periphery (e.g., *que alt* or *tan dolç*). I will argue that, as exclamatives, they have the same basic semantics and contribution to discourse. Obviously, though, in (1a) a DegP is *wh*-moved to Spec,C, whereas in (1b), the whole DP is in this position. The effects of this distinction have to do with the role of predication or modification of the DegP with regard to the noun. Specifically, in (1a), DegP establishes a predication relation with the subject, whereas in (1b), DegP is a modifier of the noun.

The Catalan constructions that I am leaving aside are the following:

(2) a. Com és d'alt en Pau!
         how is of tall the Paul
         'How tall Pau is!'

     b. Com corren   els   atletes!
         how run.they the.PL athletes
         'How the athletes run!'

(3) a. Quants   turistes que han   vingut aquest any!
         how many tourists that AUX.they come   this   year
         'How many tourists have come this year!'

     b. Quant   corren   els   atletes!
         how much run.they the.PL athletes
         'How much the athletes run!'

(4) Que n'és d'alt en Pau!
     that CL is of tall the Paul
     'How tall Pau is!'

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[1] Abbreviations: ACC = accusative case, AUX = auxiliary, CL = clitic, FEM = feminine gender, FOC = focus marker, FUT = future tense, IMPF = imperfective aspect, INTERJ = interjection, LIT = literal translation, NEG = negation, NOM = nominative case, PERF = perfective case, PL = plural marker, SUB = subjunctive mood.

(5) a. Si que és alt en Pau!
         so that is tall the Pau!

         'How tall Pau is!'

     b. Si que corren   els   atletes!
         so that run.they the.PL athletes

         'How much the athletes run!'

(6) a. *Lu* alt que és en Pau!
         the tall that is the Paul

         'How tall Pau is!'[2]

     b. Les   bestieses   que diu aquest còmic!
         the.PL stupid things that says this   comedian

         'The stupid things this comedian says!'

This is not supposed to be a complete list of exclamative constructions in Catalan, but a sample of constructions that can be thought of being exclamative and that I cannot include in this research. Methodologically, it seems a better move to restrict oneself to a more modest object of study in order to perform a more in depth analysis. Moreover, it is not obvious that these all deserve the same semantic and pragmatic treatment, as shall be brought up in the course of this thesis.

There are a number of issues concerning exclamatives that will be dealt with in this thesis. For starters, the basic properties that define exclamatives need to be determined. Another interesting topic is the analogy between *wh*-interrogatives and *wh*-exclamatives. That is, it is relevant to decide to what extent the *wh*-component plays a role in the semantics of these two types of clauses. In the following three examples some of the differences between EXCs and interrogatives arise:

(7) a. **Que** alt **que** és en Pau!

         'How tall Pau is!'

     b. ***Que** alt **que** és en Pau?

     c. **Com** és d'alt en Pau?

         'How tall is Pau?'

This is to show that exclamatives and interrogatives can have very different surface forms. It is not only that interrogatives and exclamatives have their own *wh*-word (but see (2) above),

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[2]Italics is added to indicate that the determiner *lu* is not accepted in Catalan prescriptive grammar.

but also that exclamatives generally contain the complementizer *que*, which is ruled out in interrogatives.

Also, exclamatives have to be considered with regard to other degree constructions and explain in what way they are comparable. I will be concerned with the semantics of the degree operators *tan* ('so') and *més* ('more'), which accounts for where the *exclamative flavor* comes from.

In the following couple of examples, only the first one is an exclamative; the other one is a result clause construction. But both the exclamative and the result clause construction contain the degree operator *tan* ('so') in Catalan, which suggests that they should be approached in a similar fashion.

(8)   a.   Quin vestit **tan** bonic que s'ha comprat la veïna!
           'What a beautiful dress our neighbor has bought!'

      b.   La veïna s'ha comprat un vestit **tan** bonic que tothom se la mira pel carrer
           'Our neighbor has bought such a beautiful dress that everybody looks at her on
           the street.'

Finally, exclamatives will be compared to declaratives with respect to their discourse contribution. The following puzzle belongs to the domain of pragmatics was first raised by Grimshaw (1979):

(9)   A: Com és d'alt en Pau? B1: Molt alt B2: # Que alt que és!
      'A: How tall is Pau? B1: Very tall B2: # How tall he is!'

As can be seen in this example, an exclamative (B2) is not a suitable answer to a question. By contrast, a fragment of a declarative (B1) is.

1.3   Overview of the analysis

In this thesis I approach exclamatives as a special type of degree construction. Whereas in other accounts the semantics of exclamatives is somehow dependent on the semantics of questions, here the *wh*-component is treated as an ingredient that has a syntactic and pragmatic effect, but it does not make the construction denote a set of alternatives (Gutiérrez-Rexach, 1996; Zanuttini and Portner, 2003).

After introducing the data and some previous analyses in chapter 2, the proposal is developed in three additional chapters. The syntactic dimension of exclamatives is considered in chapter 3, where it is proposed that *wh*-phrases in interrogatives in Catalan may land in Spec,T (following Barbosa (2001)), whereas in exclamatives they land in Spec,C, as the overt realization of the complementizer suggests. Also, *que* and *tan* are identified as the head of a DegP, which has an AP as its complement. This degree word is treated as a basic ingredient of exclamatives and the impossibility of its appearance is what prevents the majority of *wh*-words for introducing exclamatives.

In chapter 4, the degree component is discussed and the compositional semantics is worked out. The exclamative operator is claimed to establish a relation between two degrees: A standard level that is interpreted as high degree and the actual degree of a predicate that holds of an individual. This operator is found in a variety of constructions, but only in very precise environments; specifically, we will see that it is a polarity sensitivity item. In working on the semantic composition it will be made clear that we should obtain a truth value in the end, which is not precisely what we want, because if this were the case, then exclamatives would not have such a limited discourse contribution. The role of the last chapter is to provide us with an alternative denotation for exclamatives.

Chapter 5 proposes that exclamatives denote facts (Ginzburg and Sag, 2001) and I analyze the consequences of this claim. This involves dealing with what the speaker contributes to discourse and, also, with the restrictions on embedding that exclamatives in Catalan have.

Chapter 2

Properties of exclamatives

In the short history of the study of exclamatives (henceforth EXC*s*), a few properties have been treated as their hallmark, most notably, factivity and extreme degree. By *factivity*, we understand that their propositional content is presupposed and by *extreme degree*, we interpret that the degree of the adjectival property ascribed via the construction is maximal. Both of these properties will be challenged in the course of this thesis.

The purpose of this chapter is to provide the reader with enough background to become familiar with EXCs in Catalan and with the literature on EXCs in general. In doing so, I present the properties of EXCs in an alternative way, which anticipates the analysis that is going to follow in chapters 3, 4 and 5, I then examine the semantic proposals by Gutiérrez-Rexach (1996) and Zanuttini and Portner (2003).

2.1 Essential ingredients

This section organizes the properties of EXCs in Catalan in three major aspects: syntax, semantics and pragmatics. As will be seen, EXCs present interesting characteristics in each of these areas, which will make clear that they need to be examined separately from any other clause type.

2.1.1 *Wh*-exclamatives involve *wh*-movement

Wh-movement is the most obvious syntactic feature of *wh*-exclamatives. The specific issues that I will address are the following: First, I focus on the *wh*-element, then I establish an

analogy with interrogatives and relatives and, finally, I mention some embedding restrictions.

Let us start by reviewing what the possible *wh*-exclamatives are in Catalan.

(10)   a. *Que* alt que és en Pau!

'How tall Pau is!' (the degree word binds the adjective's degree variable)

b. *Que* ràpid que corre el teu cotxe!

'How fast your car runs!'

(11)   a. *Com* és d'alt en Pau!

'How tall Pau is!'

b. *Com* corre de ràpid el teu cotxe!

'How fast your car runs!'

c. *Com* mengen els micos!

'(lit.) How the monkeys eat!' (This either mean that these monkeys eat a lot, or that they eat in a certain way and in a high degree. For example, they are very rude or very polite when they eat).

(12)   *Quin* premi *tan* important que ha guanyat aquest escriptor!

'What an important prize this writer won!' (the *wh*-word is an indefinite determiner and the degree word *tan* binds the adjective's degree variable)

(13)   *Quants* estudiants que s'han matriculat a filologia aquest any!

'How many students have enrolled on philology this year!' (the quantifier binds the noun's quantificational variable)

Note that even though *que* and *com* mean the same in these contexts, the former requires pied-piping of the adjective ((10)), whereas the latter does not allow it ((11)).

At first glance, it would seem that the inventory of *wh*-words available for EXCs might match the inventory of interrogative pronouns. But there are some mismatches.

(14)   *Wh*-words that are exclusively exclamative: *que*[1] ('how').

(15)   *Wh*-words that occur in EXCs and interrogatives : *com* ('how'), *quant* ('how much/many'),

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[1]Realize that the *wh*-word and the complementizer that typically occurs in EXCs in Catalan are both written *que*. But the *wh*-word appears sentence initially and the complementizer, between the adjective and the verb.

quin-[2] N ('what N'), *quant-* N ('how much/many N').

(16)   Interrogative *wh*-words that cannot occur in EXCs: *qui* ('who'), *què* ('what'), *on* ('where'), *per què* ('why'), *quan* ('when').

    a.   *Qui has vist!

       'Who you have seen!'

    b.   *Què has menjat!

       'What you have eaten!'

    c.   *On ha anat la teva germana!

       'Where your sister has gone!'

    d.   *Per què has vingut aquí!

       'Why you have come!'

    e.   *Quan s'ha casat la tieta!

       'When our aunt has gotten married!'

In chapter 3, section 3.2.3, I argue that the ill-formedness of the *wh*-elements in (16) might have to do with the fact that they are not degree operators themselves or that they are not *wh*-phrases, so they cannot include a degree operator.

Also, notice that *quin-* cannot always be interpreted as an EXC. Its D-Linked version ('which'), as in *quin d'aquests llibres* ('which one of these books') is not available, either.

(17)   a.   Quins llibres tan gruixuts que has llegit!

       'What thick books you have read!'

    b.   *Quin d'aquests llibres que has llegit!

       'Which one of these books you have read!'

Partitive constructions involve a syntactic structure that differs noticeably from the internal syntax of the DP that hosts *tan* in an EXC. See section 3.2.3.

The previous unacceptable examples seem uncontroversial cases of ill-formed EXCs. Nevertheless, there are cases in which the *wh*-words that are not supposed to be part of the inventory of exclamatory *wh*-words appear in contexts that resemble somehow EXCs. Even

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[2]The hyphen intends to show that these interrogative words decline for gender and number, depending on the nature of the N they precede.

though no confusion arises in English – where interrogatives and EXCs are clearly differentiated by the presence/absence of subject-verb inversion – EXCs in Catalan exhibit subject-verb inversion just as interrogatives do. Additionally, interrogatives may be employed in situations where the speaker does not have a neutral attitude. As a consequence, the terms *exclamative, exclamation, exclamatory clause* and even *exclamative question* have been sloppily used in descriptive grammars to name a variety of *wh*-constructions that are not EXCs in my classification. These include:

(18)   a.   Qui carai has vist?!

          'Who the hell have you seen?!'

     b.   Què has menjat?!, si es pot saber...

          'What have you eaten?!, if I am allowed to know...'

Examples like the preceding ones are taken to be *false exclamatives* in Castroviejo (to appear). The sentences in (18) include expressions like *carai* ('in the world'), which are not found in EXCs.

(19)   a.   Com (*carai) has jugat!

          'How in the world you played!'

     b.   Com (carai) has jugat?!

          'How in the world did you play?!'

(19a) is interpreted as (20), that is, the addressee understands that there is an unpronounced gradable adverbial that is recovered from context.

(20)   Com has jugat *de bé*!

      '(lit.) How well you have played!'

For (19a) to be acceptable, the speaker must hold an attitude towards the degree to which the addressee plays well, whereas in (19b), the speaker questions the addressee about the way he/she has played. That is, in (19a) the speaker knows the degree to which the addressee plays well, which is inferred because he/she shows an attitude towards this degree. In contrast, (19b) is not interpreted as having unpronounced material. *Com* does not modify the degree argument of a gradable adverbial, but it is used to ask about the manner in which

the addressee has player. It resembles an EXC only in that they both involve a non-neutral attitude by the speaker.

The sentences in (21) represent another instance of false exclamative.

(21)   a. Qui ho havia de dir?!
            'Who would have said it?!'

        b. Què no faria per ser a la seva graduació?!
            '(lit.) What wouldn't I do to be at his/her graduation?!'

It is an interrogative that does not look like a question, because the speaker who utters it knows the answer and, certainly, the intonation is not one occurring in questions. However, this does not make it an EXC, but a rhetorical question. According to Han (1998) (and references therein), these clauses denote propositions whose polarity is the opposite of the polarity of the interrogative. That is, if the interrogative clause does not contain any negative marker, then the proposition that is asserted does. And, in contrast, if the interrogative contains a negative marker, then the proposition that is asserted does not. Hence, the examples in (21) could be paraphrased as *Nobody would have said it* and *I would do anything to be at his/her graduation*.

From the previous examples we gather that negation is available for rhetorical questions, but I want to show that it has a very limited distribution in EXCs. Although this argues against previous accounts (see Espinal (2002a)), negation in EXCs is interpreted in very few contexts (cf. Villalba (2004b)), but it is not interpreted expletively, as is the case in rhetorical questions. Notice that, on top of this, expletive negation is at odds with the complementizer *que* that occurs in EXCs, whereas non-expletive negation co-occurs with the complementizer, when it is available.

(22)   a. Quants llibres que no hauries d'haver llegit!
            'How many books that you should have not read!' [Pointing at a pile of books]

        b. ??Quines coses que no   faria   per ser a la   seva   graduació!
            what   things that NEG would do.I to be to the his/her graduation

What we see in (22a) is that the complementizer co-occurs with negation and, most importantly, it cannot be interpreted expletively, because the meaning of the sentence cannot be paraphraseable as *You should have read a lot of books*. To make the sentence have this

meaning, the complementizer has to be removed. On the other hand, (22b), which is parallel to (21b), has a single marginal interpretation in which negation is not expletive. Instead, we have to imagine that there are a number of things (e.g., very weird things) that the speaker would not do to attend the referent's graduation, so the speaker shows an attitude towards the degree of weirdness of the things he/she would do not to be there. This is then not a rhetorical question but an EXC.

So far, I have presented the EXCs' properties with regard to the *wh*-element. Now let us consider the overall similarities between EXCs and relative clauses, on the one hand, and between EXCs and *wh*-interrogatives, on the other. We might establish an analogy with relative clauses, mainly because EXCs optionally contain the complementizer *que*.[3]

(23)   a. Quines coses   tan divertides (que) diu   en Ramon!
           what   things so amusing   that says the Ramon
           'What amusing thins Ramon says!'

       b. Que alt (que) és en Pau!
           how tall that   is the Paul
           'How alt Pau is!'

       c. Quant   de temps (que) ha   passat!
           how much of time   that AUX.it passed
           'How much time has gone by!'

Que is obligatory in relatives without a *wh*-pronoun ((24)) and banned in EXCs when the *wh*-exclamative element is not the head of a phrase, but a maximal projection itself ((25)).

(24)   a. El noi *(que) balla   amb la Maria és astronauta.
           the boy that   dances with the Mary is astronaut
           'The boy who dances with Maria is an astronaut.'

       b. La noia amb qui   (*que) balla   l'astronauta es diu   Maria.
           the girl with whom that   dances the astronaut is called Mary
           'The girl with whom the astronaut dances is called Maria.'

(25)   a. Com (*que) has   corregut!
           how that   AUX.you run

       b. Quant   (*que) menja en David!
           how much that   eats   the David

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[3]Depending on the dialect, the frequency of appearance of *que* is higher.

Despite this obvious analogy, relatives and EXCs differ in at least three important aspects. First, in relatives, the complementizer is not optional as it is in EXCs ((26a)); second, the DP that the relative clause modifies is not headed by a *wh*-determiner as it is in EXCs ((27)); and third, relative clauses do not necessarily involve subject-verb inversion (i.e., the subject may occur between the complementizer *que* and the verb) whereas it is obligatory in EXCs ((28)).

(26) a. El pastís *(que) ha   fet   en Ferran és molt dolç
          the cake   that   AUX.he done the Ferran is very sweet
          'The cake (that) Ferran made is very sweet.'

      b. Quin pastís tan dolç (que) ha   fet   en Ferran!
          what cake   so sweet that AUX.he done the Ferran
          'What a sweet cake Ferran made!'

(27) a. M'he   menjat un pastís que ha   fet   en Ferran
          to.me AUX.I eaten a cake   that AUX.he done the Ferran
          'I have eaten a cake that Ferran made.'

      b. *M'he   menjat quin pastís que ha   fet   en Ferran
          to.me AUX.I eaten what cake   that AUX.he done the Ferran

(28) a. *Quin pastís tan dolç que en Ferran ha   fet!
          what cake   so sweet that the Ferran AUX.he done
          'What a sweet cake Ferran made!'

      b. El pastís que ha   fet   en Ferran era molt dolç.
          the cake   that AUX.he done the Ferran was very sweet
          'The cake that Ferran made was very sweet.'

      c. El pastís que en Ferran ha   fet   era molt dolç.
          the cake   that the Ferran AUX.he done was very sweet
          'The cake Ferran made was very sweet.'

As for the analogy with *wh*-interrogatives, one of the most relevant properties that EXCs and interrogatives share is that they both undergo subject-verb inversion.

(29) Quins ingredients tan bons que [$_V$ té] [$_{Subject}$ aquesta sopa]!
      'What good ingredients this soup has!'

(30) Quins ingredients [$_V$ té] [$_{Subject}$ aquesta sopa]?
      'What ingredients does this soup have?'

The subject cannot appear before the verb, but neither can other kind of phrases (like the adverb *ahir* – 'yesterday' – below).

(31) a. Que alt que és en Pau!

          'How tall Pau is!'

      b. *Que alt que en Pau és!
          how   tall that the Paul is

(32) a. Quin pastís tan dolç que vas fer ahir!

          'What a sweet cake you cooked yesterday!'

      b. *Quin pastís tan dolç que ahir   vas   fer!
          what cake   so   sweet that yesterday AUX.you to.do

(33) a. Quin pastís vas   fer   ahir?
          what cake   AUX.you to.do yesterday

          'What cake did you make yesterday?'

      b. *Quin pastís ahir   vas   fer?
          what cake   yesterday AUX.you to.do

In spite of the similarities involving *wh*-movement and subject-verb inversion, EXCs and *wh*-interrogatives differ in many respects. To begin with, *wh*-interrogatives allow *wh*-in situ, either in echo-interrogatives ((34)) or in multiple interrogatives ((36)). In contrast, none of these options are available for EXCs (cf. (35) and (37)). In (35a), we see the *wh*-phrase in the left periphery; in (35b) we see a similar clause that does not contain a *wh*-indefinite quantifier, so the DP stays in situ and the sentence is acceptable. The next example shows that this is not possible if the indefinite quantifier includes [+wh], but it is if, instead of an EXC, it is an interrogative, as in (34). As for multiple *wh*-clauses, notice that (36) could be answered as "Picasso painted "Gernika" and Van Gogh painted "Sunflowers", but the examples in (37) are unacceptable.

(34) Que ha dit QUÈ?

      'You have said WHAT?'

(35) a. Quin pastís tan dolç que he menjat!

          'What a sweet cake I have eaten!'

      b. He menjat un pastís tan dolç!

          'I have eaten such a sweet cake!'

      c. *He menjat quin pastís tan dolç!

          'I have eaten what a sweet cake!'

(36)   Quin pintor ha pintat quin quadre?

       'What painter painted what picture?'

(37)   a. *Quin home tan alt com corre!
            what   man   so   tall how runs

       b. *Que ràpid que t'has   menjat quina hamburguesa tan gran!
            how   fast   that to.you AUX.you eaten   what hamburguer so   big

Another difference between *wh*-interrogatives in Catalan and EXCs is that, unlike relatives, interrogatives cannot contain the complementizer *que*:

(38)   *Quines coses que ha   dit?
        what   things that AUX.he said

An additional aspect that distinguishes EXCs with respect to interrogatives is that the exclamative *quin* shows no restrictions to the extension of the noun it precedes, unlike interrogative *quin*, which can only combine with expressions that denote sets with at least two members.

(39)   a. Quin sol que fa!

            'It's so sunny!' (lit. 'What sun it does!')

       b. Quina gana que tenies!, eh?

            'You were so hungry!, weren't you?' (lit. 'What hunger you had!, didn't you?')

(40)   a. *Quin sol fa?
            what   sun does

       b. *Quina gana   tens?
            what   hunger have.you

And, finally, *wh*-exclamatives may lack an overt TP ((41)). This happens when the *wh*-phrase is the object of a light verb ((41a)), and when the *wh*-phrase is interpreted as the predicate of a subject that is salient in the context and we understand that a copular verb is unpronounced ((41b)). In these particular cases, both (41) and (42) may be used in the same context and with the same meaning.

(41)   a. Quina sorpresa tan gran!

            'What a great surprise!'

       b. Que irreverent!

            'How irreverent!'

(42) a. Quina sorpresa tan gran que he tingut!

          'What a great surprise I've had!'

      b. Que irreverent que és l'Andreu!

          'How irreverent Andreu is!'

A last aspect that concerns the syntax of *wh*-movement in EXCs is the fact that they show many restrictions on embedding: *Wh*-exclamatives in Catalan are introduced by perception verbs in the imperative mood ((43a)), in yes-no interrogatives ((43b)) and in future tense ((43c)), but they are not easily introduced by factive verbs. In cases where languages like English would have embedded *wh*-exclamatives ((44)), Catalan has DP-exclamatives ((46a)) and degree relatives ((46b)).

(43) a. Mira quin home tan graciós que surt per la tele!

          'Look what a funny man that is on TV!'

      b. Has vist quin noi tan alt que va amb bici?

          'Have you seen what a tall boy is riding a bike?'

      c. Ja veuràs que bé que ens ho passarem.

          'You'll see what a great time we'll have.'

(44) a. It's amazing how tall he is.

      b. I found out what a great scientist she maried.

(45) a. ??És increïble que alt que és.
          is   incredible how tall that is

      b. *Vaig esbrinar   quina científica més bona que va   conèixer la   Marie.
          AUX.I to.find.out what scientist more good that AUX.she to.meet the Marie

(46) a. És increïble la barra que té ton germà.

          'It's amazing the cheek your brother has.'

      b. És sorprenent *lu*   llest   que és aquest noi.
          is surprising the smart that is this   boy

          'It's surprising how smart this boy is.'

2.1.2   Exclamatives contain a degree expression

EXCs are treated in this thesis as a kind of degree construction. To begin with, this means that they must contain a gradable predicate (i.e., one that can be modified by the comparative

morpheme).

(47) Quin gat tan simpàtic!

       'What a nice cat!' (nice, nicer)

(48) *Quin gat tan quadrúpede!
       what   cat so   four-legged
       (four legged, *more four legged)

   The inventory of degree words in Catalan EXCs are the following:

(49) *Tan* ('so') or *Més* ('more'): Quin gos (més/tan bonic) que ha dibuixat el teu fill!
       ('What a nice dog your son has drawn!')

(50) *Que* ('how'): Que exagerats que són els teus pares! ('How exaggerate your parents
       are!')

(51) *Com* ('how'): Com són d'exagerats els teus pares! ('How exaggerate your parents
       are!')

(52) *Quant* ('how much/many'): Quant corre aquest cotxe! ('(lit.) How much this car
       runs!')

(53) *Quant*-+N ('how much/many +N'): Quantes bestieses que haig de sentir al cap del
       dia! ('How much nonsense I have to hear at the end of the day!')

   Regarding the semantics of the degree operators, *tan* ('so') and *més* ('more') imply that
there is some critical degree to which the relevant property holds of its argument. Though
this value is not explicitly stated, it is standard level that expresses high degree. As a matter
of fact, it is high enough to provoke an emotional attitude in the speaker.

   As is shown in the examples below, the gradable adjective cannot appear inside the excla-
mative *wh*-phrase without the overt presence of the degree expression. Otherwise it modifies
the noun but without the implication that the degree denoted by the predicate is special in
any way. This supports the idea that it is the degree expressions *tan/més* that involve high
degree, not the *wh*-phrase headed by *quin*. Hence, (54a) can only be interpreted as (54b),
where a DegP headed by *tan* or *més* has to be recoverable from context.

(54)   a. ??Quin cotxe vermell que t'has   comprat!
           what   car   red   that to.you AUX.you bought

b. ?Quin cotxe vermell tan luxós que t'has comprat!

'What a luxurious red car you have bought!'

Besides the degree operator and the gradable predicate, an EXC can include a few modifiers. On the one hand, certain manner adverbs are allowed. As pointed out by Elliott (1974), the manner adverbs must be compatible with high degree (adverbs like *raonablement* – 'reasonably' – do not make much sense in the context of an EXC). On the other hand, the modifier *poc* ('little') can precede the gradable adjective to reverse the polarity of the predicate, as will be commented on in chapter 4.

(55)   a. Que extremadament alt que és en Pau!
           'How extremely tall Pau is!'

       b. # Que raonablement alt que és en Pau!
           'How reasonably tall Pau is!'

(56)   Que poc alt que és en Pau!
       '(lit.) How little tall Pau is!'

However, the semantics of the degree operator is incompatible with the presence of other degree elements such as *molt* ('very'), *massa* ('too'), *bastant, força* ('quite') and *prou* ('enough').

(57)   *Que molt/massa/bastant/força/prou alt que és en Pau!
        how   very/too/quite/quite/enough   tall that is the Paul

Finally, as has been advanced in the previous subsection, negation shows a very limited distribution in EXCs. It can modify the verb in a *quant*-exclamative when the referent of the NP is salient in the context (Villalba, 2004b) (cf.(58a) vs. (58b)). All other combinations are less acceptable. In particular, (59) cannot be properly interpreted.

(58)   a. ?Quants llibres que no has llegit!
           'How many books you haven't read!' [pointing at a pile of books]

       b. *Quants acudits que no explicaria mai si sortís a la tele!
           'How many jokes I would never tell if I were ever on TV!'

(59)   *Que sorprès que no està el president!
       'How surprised the president is not!'

The ill-formedness of examples like (59) have been explained along the lines of Rullmann (1995) and Heim (2001) (Villalba, 2004b), which account for the constraint that applies to degree operators in interrogatives ((60a)) and in the comparative ((60b)).

(60)   a. *How smart isn't Ray?

       b. Ray isn't smarter than you are.

Roughly, according to these authors, it does not make much sense to presuppose the existence of a maximal degree d such that Ray is not d-smart (there does not exist a maximal degree of non-smartness). This makes (60a) impossible to interpret, but not (60b). According to Heim (2001) a comparative also involves a maximality operator, so when another operator occurs in a comparative construction, there might be two interpretations depending on which one has scope over the other one. In the case of negation, though, only one reading is available; one in which the negative operator takes scope over the maximality operator (i.e., it is not the case that there is a maximal degree of smartness such that Ray is smarter than you). The other one is banned, because it is impossible to think of a maximal degree such that Ray isn't smart to this degree.

As shall be discussed briefly in chapter 5, the degree operator takes scope over negation which also is the case in interrogatives. But I do not postulate the existence of a maximality operator. The ill-formedness of (59) may be accounted for by saying that a contradiction arises: The speaker holds an attitude towards a high degree, but the negative operator makes sure that there is no such high degree.

2.1.3   Exclamatives do not assert their propositional content

So far, a few syntactic and semantic idiosyncracies have been mentioned. But to understand how peculiar EXCs are as a whole, something must be said about their contribution to discourse.

For starters, it is remarkable that EXCs cannot be used as answers to questions: They are unable to present their propositional content as an assertion ((61)) and they cannot be answered, even though they can be confirmed ((62)).

(61)   A: Com és d'alt en Pau? B1: Molt alt B2: Fa 1.90 m B3: # Que alt que és!

       'A: How tall is Pau? B1: Very tall B2: He's 1.90 meters tall B3: # How tall he is!'

Wh-movement has to do with this effect, since declarative degree constructions are suitable answers, as B1 and B2 show.

(62)   A: Que alt que és en Pau! B1: # Fa 1.90m B2: I tant!
       'A: How tall Pau is! B1: # He's 1.90 meters tall B2: Indeed!'

The reason to believe that they can be answered comes from the fact that these EXCs are introduced by a *wh*-word, like *wh*-interrogatives that denote questions. But the fact that they can be confirmed suggests that the speaker who utters an EXC does not ask a question, but he/she is committed to the descriptive content of the clause (Gunlogson, 2001).

2.1.4   Summary

Summing up, exclamatives in Catalan are the combination of *wh*-movement, a degree expression which denotes high degree, and some pragmatic conditions that make them unsuitable as assertions.

The the analogy with other constructions and the structure of the *wh*-phrase will be discussed in chapter 3; the aspects related with the semantics of degree will be examined in chapter 4, and the final issues that regard the meaning of the exclamative construction as a whole – including its contribution to discourse and the restrictions on embeddability – will be analyzed in chapter 5.

2.2   Previous analyses

Gutiérrez-Rexach (1996) and Zanuttini and Portner (2003) are not the only analyses of EXCs, but they are the most relevant semantic proposals that account for the data that have been presented in the literature on EXCs, such as those raised by Elliott (1974) and Grimshaw (1979). Other analyses, such as the ones by D'Avis (2002) and Abels (2005) – which claim that EXCs are not a clause type on their own – shall be referred to in chapter 5, where embeddability conditions will be commented on. I do not mention here other analyses such as Milner (1978); Radford (1982); Bosque (1984); Benincà (1996) or Postma (1998), because they are purely syntactic in nature and my main purpose here is to provide a complete picture of the meaning of EXCs.

2.2.1   Zanuttini and Portner (2003)

Zanuttini and Portner (2003)'s main claim is that every exclamative clause must contain a *wh*-word and a factive morpheme. From this union arises a pragmatic component that identifies an exclamative as a clause type. They call this pragmatic inference *widening*.

Let us start by clarifying the notion of *factivity*, which has played a key role in the previous literature on EXCs. Factivity is a concept that has been applied in different ways. The authors who coined the term were Kiparsky and Kiparsky (1970). Their exact words were:

> [a factive predicate] ... presupposes that the embedded clause expresses a true
> proposition, and makes some assertion about that proposition.
> (Kiparsky and Kiparsky, 1970, 147)

Some time later, Elliott (1974) claims that only factive predicates select for *exclamations*. And before Zanuttini and Portner (2003) make their own contribution, (Grimshaw, 1979, 285) says:

> [...] exclamations are analyzed as inherently "factive".

And by that she means that a sentence like (63) presupposes (64).

(63)   I know what a fool Bill is.

(64)   Bill is a fool.

Note that from Elliott (1974) to Grimshaw (1979) a significant step has been taken, namely, one from claiming that the embedding predicate is factive to stating that the EXC itself is factive. This means that factivity is not solely applied to predicates but rather that any presupposition trigger can be named *factive*. In the situation at hand, this implies that an EXC includes a presupposition trigger and a propositional content, which is the fact that Bill is tall, under Grimshaw (1979)'s account. It is not until Zanuttini and Portner (2003) that this factivity component is spelled out. Zanuttini and Portner claim that EXCs are factive. But they disagree with Grimshaw (1979) on what propositional content is presupposed. They argue that EXCs generate a widened quantificational domain that includes a set of alternatives that are not part of the alternatives that a *wh*-interrogative denotes, and every proposition that this widened domain contains is presupposed to be true. I will now elaborate on this latter proposal.

Here are the main facts that led the previous authors to advocate for factivity as a crucial property, which, in Zanuttini and Portner (2003)'s proposal, is cashed out as the existence of a covert factive morpheme that is hosted in Spec,C.

(65) a. It's amazing/surprising/unbelievable how very smart you are.

b. *I wonder how very smart you are.

What is crucial in the previous examples is the presence of *very*, which establishes a difference between interrogatives and EXCs (*How very tall is John?* vs. *How very tall John is!*), so it works as an exclamative marker. In the sentences above, it is clear that an EXC can embed in factive predicates like *It's amazing, surprising, unbelievable* but not in non-factive predicates such as *wonder*.

According to Zanuttini and Portner (2003), the factive morpheme is important in EXCs because it makes widening available. To understand widening, the reader must know that these authors claim that EXCs have the same kind of denotation as do *wh*-interrogatives. Following Hamblin (1973); Karttunen (1977) and Groenendijk and Stokhof (1984), this amounts to saying that these clauses denote a set of propositions that are compatible with the possible or true answers to the question. The effect of joining the *wh*-operator and the factive morpheme is the appearance of widening, which creates a larger set of alternatives. It is larger because it not only contains standard answers to the question, but also unexpected ones. Zanuttini and Portner claim that this part of the content of the clause is presupposed.

Since EXCs embed in factive predicates, we have to understand that factivity is a property that both the predicate and the clause have. Recall that, according to Zanuttini and Portner (2003), an EXC is the result of combining a *wh*-operator and a factive morpheme, but if, when embedded, the *wh*-clause does not contain the factive morpheme, then it should be an interrogative. What they mention in (Portner and Zanuttini, 2005a, fn.3) is that, since the construction is factive, the exclamative meaning is inherited by the root sentence (which includes a factive verb). Nevertheless, they maintain that widening remains in the embedded clause, which contradicts the idea that embedded clauses are devoid of sentential force. Their interpretation of factivity leads them to explain the contrast in (66) in the following manner: There is an incompatibility between the factive presupposition and the lack of the speaker's knowledge asserted in the sentence.

(66) a. I know how very smart you are.

    b. *I don't know how very smart you are.

More specifically, under their account, the EXC indicates that there is a widened set of proper answers to the question *How smart are you?*, which is presupposed to be true. If this clause is embedded under *I don't know*, then the speaker is denying that he/she has this knowledge, which is incompatible with the sentence's presupposition.

Finally, they take up Grimshaw (1979)'s interpretation of the facts in (67) as an additional argument in favor of EXCs being factive.

(67) A: How tall is Bill? B1: 1.80 m-tall. B2: # How tall he is!

They argue that the reason why EXCs cannot be used as answers is a consequence of factivity: A sentence cannot be used as an answer if it presupposes the information that it contains. In other words, even though a sentence like *How tall Bill is!* includes the information that Bill is tall, which would be a proper answer to the question, it includes an additional ingredient which makes it unable to present this information as an answer. Zanuttini and Portner (2003) present further evidence in this line, due to (Grimshaw, 1979, 321). What the following example is supposed to show is that presupposed material (a *that*-clause embedded in the factive predicate *it's odd*) is not the kind of content that can be used to answer a question.

(68) A: Did Bill leave? B: # It's odd that he did

It has been already mentioned that factivity on Zanuttini and Portner (2003)'s analysis is syntactically realized as a factive morpheme (FAC) that is located in Spec,C. Following arguments in Watanabe (1993), the authors assume that factivity requires an extra CP layer, which involves an additional bounding node, so that, for example, one can account for these verbs being islands to movement:

(69) a. John regrets that he fired Mary (Watanabe, 1993, 527)

    b. $[_{CP} [[_C \text{ that}_i [_{CP} \text{ FACT } [[_C \text{ t}_i] \text{ IP}]]]]]$

(70) a. Che alto che l   ze! (Paduan) (Zanuttini and Portner, 2003, 64)
        what tall that s.CL is
        'How tall he is!'

    b. $[_{CP} \text{ che alto } [[_C \text{ Ø}] [_{CP} \text{ FACT } [_C \text{ che}] \text{ IP }]]]$

Now consider the semantics proposed by Zanuttini and Portner (2003). EXCs denote a set of alternative propositions, just like interrogatives (cf. Hamblin (1973); Karttunen (1977) or Groenendijk and Stokhof (1984)). The propositional part of their meaning is the same as that of questions, but their force differs. Their different sentential force is what makes them different clause types.

(71)   a. Che roba che l   mangia! (Paduan)
            what stuff that he eats

            'The things he eats!' (Zanuttini and Portner, 2003, 49)

    b. [[Che roba che l mangia!]]$_w$= {p: p is true and $\exists\,a$ [p ='a is a pepper and he eats a']}= {eats(he,poblanos), eats(he,serranos), eats(he,jalapeños)}

(72)   [[What does John eat?]]$_w$={eats(John,poblanos), eats(John, serranos), eats(John, jalapeños)}

What the preceding examples show is that interrogatives and EXCs are semantically identical; they both denote a set of propositions.

On the other hand, Zanuttini and Portner (2003) also assume that *wh*-phrases (as quantifiers) have domains of quantification. These domains can be represented as an index to the *wh*-word (C), and its value is a subset of the domain of discourse U.

(73)   What$_c$ things he eats!

Zanuttini and Portner propose that a sentence like (73) has two domains of quantification: The first one would be the set of the individuals denoted by the *wh*-clause in a standard situation; the second one would be a larger domain that would not only contain the expected individuals, but also unusual ones. Here is the crucial part of their analysis: How this consideration of a larger set (widening) occurs. It is because of the presence of FAC, which makes the non-standard alternatives in the quantificational domain be presupposed. This widening is the hallmark of EXCs, what makes them different from the clause type which they resemble the most, interrogatives. That is why widening is interpreted as their sentential force.[4] This is the way it is formally defined:

(74)   Widening: For some domain variable C, change the assignment function g to g' such that

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[4]Some comments on the distinction between sentential force and illocutionary force can be found in section 3.1.3. See also Zanuttini and Portner (2003) and Portner and Zanuttini (2005b) for their entire discussion.

1. g differs from g' only on what it assigns to C, and

2. $[\![S]\!]_{g'}- [\![S]\!]_g \neq \emptyset$.

(Portner and Zanuttini, 2005a)

By assumption, the assignment g yields the (narrower) domain D_1, and the assignment g' yields the (larger) domain D_2. Following the example in (71b), what we get is (75):

(75) a. $[\![S]\!]_{D_1}=\{$eats(he,poblanos), eats(he,serranos), eats(he,jalapeños)$\}$

   b. $[\![S]\!]_{D_2}=\{$eats(he,poblanos), eats(he,serranos), eats(he,jalapeños), eats(he,güeros), eats(he,habaneros)$\}$

Notice that the alternatives in these sets are ordered from more standard to less standard (the criterion in the preceding example is the fact that some peppers are hotter than others). This is supposed to be the effect of a scalar implicature.

Here is a previous formulation of *widening* in the authors' 2003 paper, which states the conditions that widening imposes in a slightly different manner:

(76) a. $R_{widening}$ refers to an element in the syntax to which the pragmatic operation of widening will apply.

   b. $R_{widening}$ has the semantics of a quantificational operator.

   c. WIDENING: For any clause S containing $R_{widening}$, widen the initial domain of quantification for $R_{widening}$, D1, to a new domain, D2, such that

      i. $[\![S]\!]_{W,D2,\prec}- [\![S]\!]_{W,D1,\prec} \neq 0$ and

      ii. $\forall x \forall y[(x \in D1 \ \& \ y \in (D2 - D1)) \rightarrow x \prec y]$

Quoting (Zanuttini and Portner, 2003, p.52):

Here $[\![S]\!]_{W,D2,\prec}$ is the set of true (in w) propositions of the form 'he eats x', where x is drawn from the new domain D2, while $[\![S]\!]_{W,D1,\prec}$ is the corresponding set for the old domain D1. Saying that the difference between these two, $[\![S]\!]_{W,D2,\prec}- [\![S]\!]_{W,D1,\prec}$, must be nonempty amounts to requiring that new things that he eats be added to the domain.

In (74) the denotation is given in terms of assignment functions that determine the two domains, whereas in (76) D2 occurs as a consequence of widening, which expands D1 up

to D2. And, presumably, the 2003 proposal suggests that there is an element in syntax to which widening applies, which must be the *wh*-operator. Realize that this might be somehow inconsistent with the notion of sentential force they adopt, which states that force is not grammatically realized. Here, both the *wh*-component and the factivity component, even if the latter is a covert morpheme, are part of the syntax of EXCs, as is mentioned in the next chapter. In any case, they are both conditions that make sure that the second domain that yields the denotation of an EXC be larger than the first one.

Now, Zanuttini and Portner (2003) reformulate factivity in the following terms:

(77) a. Let $R_{factivity}$ be the syntactic representation of factivity.

b. FACTIVITY: For any clause S marked by $R_{factivity}$, every $p \in (\llbracket S \rrbracket_{D2} - \llbracket S \rrbracket_{D1})$ is presupposed to be true.

We can finally come back to the definition of *factivity* and justify that in the sentence *How very tall John is!* what is presupposed is not only that John is tall (cf. Grimshaw (1979)), but also that every degree of tallness that belongs to the widened segment of the second quantificational domain created by widening is true. In the example about the peppers, factivity yields the interpretation that he eats güeros and habaneros, since the propositions 'He eats güeros' and 'He eats habaneros' are part of D2, but not part of D1, which is not necessarily true, on the other hand. It remains unclear, though, which of the elements are presupposed, given a comment in (Portner and Zanuttini, 2005a, 5): "Factivity means that he is presupposed to eat *at least one thing in the widened domain of quantification.*" (The emphasis is mine).

The reason to appeal to widening is because the literature has employed a variety of intuitive terms such as *unexpectedness, extreme degree* or *expression of strong feelings*. Zanuttini and Portner (2003)'s proposal is that widening is the formal correlate of all of them. Specifically, widening is the formalization of what the authors call a *scalar implicature*. By that they mean that when someone utters an EXC, the proposition it denotes lies at the extreme end of a contextually given scale. In other words, in the example *How tall Bill is!*, it is implied that there is no upper degree that could be applied to the individual to whom the gradable predicate holds in that situation. In the case of EXCs that do not contain an explicit gradable predicate (as in *What things he eats!*), the implicature is that he could not eat any more unexpected things. Interestingly, they claim that – unlike usual scalar implicatures as

stated in Grice (1989), among many others – this is a conventional implicature, because it is nondefeasible and detachable.

(78)   a. ??How very cute he is! – though he's not extremely cute.

        b. He's quite cute! – though not extremely cute.

In their view, *How cute he is!* indicates that he is cuter than the alternatives under consideration, and this effect is the consequence of an implicature. This is how (Zanuttini and Portner, 2003, 47) justify this statement:

> [...] this aspect of its meaning can be labeled an implicature because it goes beyond the sentence's truth-conditional meaning.

In particular, (78b) shows that even though the semantic content of the first part of both sentences in (78) is the same, the EXC contains an implicature which is tied to the form of the sentence (not to its semantic content).

Although I agree that the semantics and the discourse distribution is different in an EXC and a declarative – and hence the difference between the sentences in (78) – I disagree in the interpretation of the ill-formedness of example in (78a). Specifically, I believe that it does not have to do with the fact that a conventional implicature is being canceled. Instead, what is odd is to combine an EXC and a declarative (with each particular discourse contribution) in the same sentence. As becomes evident in the following examples, an EXC cannot be followed by a declarative introduced by *although* and *but* irrespectively of whether or not the declarative cancels what the EXC implicates.

(79)   a. ??How very cute he is! – though I shouldn't say it so loud.

        b. ??How very cute he is! – but he lives a thousand miles away.

As a matter of fact, a clause introduced by *and* is only barely acceptable if it has an exclamatory accentual pattern.

(80)   ?How very cute he is!... And he loves me!!

Also, the sentence is pragmatically odd if it is followed by *because*, even if from the causal clause it is inferred that he is extremely cute:

(81)   ??How very cute he is! – because his mother is also extremely cute.

We could even try with a sentence that is not an EXC, but whose intonational pattern is exclamatory, and, still, the sentence is ill-formed. This means that the explanation of the puzzle in (78a) has to do with the type of speech act rather than with the syntactic construction.

(82)   ??Wow, he's cute! – though he's not extremely cute.

Realize that, if we use an embedded EXC, the ill-formedness of (78a) disappears.

(83)   I'm amazed at how very cute he is, though I know he's not extremely cute.

Zanuttini and Portner (2003) claim that an additional effect of the scalar implicature is to order the elements in the quantificational domains so that they follow the relation $\prec$. This derives from a specification in the definition of widening in (76), which states that there is an ordering in the quantificational domain, represented by $\prec$ in $[\![S]\!]_{W,D,\prec}$. According to Krifka (1995), a sentence S is generally considered against the background of a relevant set of alternatives. So when scalar items are involved, the relevant set of alternatives is built upon propositions that contain other members of the scale, and they are presented in their natural order, from the weakest to the strongest. As a consequence, every item entails the one to its left. Similarly, the presentation mode of quantificational domains suggests this property: If habaneros are x-hot, then güeros are x–1-hot, and jalapeños are x–2-hot. The problem is that it is not obvious how this implicature arises, that is, in the usual examples there is a clear cut relation among quantifiers (e.g., *some* $\succ$ *many* $\succ$ *all* or \$400 $\succ$ \$500 $\succ$ \$600). According to Zanuttini and Portner, in the case of EXCs, the scale does not contain quantificational items, but propositions that can be ordered according to a certain property, depending on each clause. In the example *What things he eats!*, whose alternatives are spelled out in (71b) above (repeated here as (84)) the entailments of a scalar implicature should go from right to left:

(84) $[\![$Che roba che l mangia!$]\!]_w=$ {p: p is true and $\exists\, a$ [p ='a is a pepper and he eats a']}= {eats(he,poblanos), eats(he,serranos), eats(he,jalapeños)}

That is, if he eats jalapeños, it means that he eats serranos and also poblanos, which is not necessarily true.

To conclude with Zanuttini and Portner (2003)' account, I will briefly mention what their ideas on the EXCs' pragmatic status is. The authors' view of clause typing aims to account for the facts in (67) and (85).

(85)   a. A: How tall is he? B: Seven feet

       b. A: How very tall he is! B1: # Seven feet B2: He really is! / Indeed!

They are positive that the properties of factivity and widening are responsible for the exclamatives' inability to appear in question/answer contexts. Or more precisely, these two properties are the clue to the pragmatic status of EXCs. EXCs cannot be used as answers because an answer cannot presuppose the information that provides the answer. More generally, an EXC cannot make an assertion, because presupposed information cannot be added to the Common Ground (Stalnaker, 1978). Also, they cannot be questions because it does not make sense to ask something whose answer is already known by the speaker. And they cannot be imperatives, because one would not give an order to do something that he/she knows will happen anyway. (See Zanuttini and Portner (2003) and Portner and Zanuttini (2005a) for the more formal explanation of these ideas.) They reach the conclusion that widening is a way of updating the discourse context – which is different from asserting, asking or ordering –, the means for a factive clause to have a conversational effect, so widening describes the sentential force of exclamatives. Furthermore, since widening is the result of enlarging a quantificational domain and the two relevant domains are generated by the *wh*-word, only *wh*-exclamatives are EXCs. Since *wh*-exclamatives are not universally attested, under their account, EXCs are not a universal clause type.

Evaluating this proposal, I can see a few strong points and a few weak points. The biggest contribution of this work is the fact that its purpose is to cover a large amount of data and it gives a global account that comprises syntax, semantics and pragmatics. Furthermore, the authors define EXCs in a precise way and reduce the sloppiness of the term *exclamative* by establishing a difference between illocutionary force and sentential force.

However, some issues are controversial or unsatisfactorily solved. To begin with, under their view, widening is a sentential force which identifies EXCs as a clause type and stems from the combination of a *wh*-operator and factivity. Embedded clauses do not have force, because force is concerns utterances and not propositions, but, then again, the ingredients to make widening arise (*wh* + factivity morpheme) are still there, which suggests that widening

should occur. They claim that the exclamative meaning in a sentence like *It's amazing how cute he is* is incorporated into the root context because the construction is factive, although they state that widening remains in the embedded clause.

On the other hand, since they base their concept of *exclamative* on the necessary presence of a *wh*-operator and the semantics of questions, they include in the set of possible EXCs a few *wh*-clauses that have properties that are not typical of the rest of EXCs. I mean some examples from Italian that look more like rhetorical questions than EXCs. Note that the following sentence is unacceptable with an exclamative intonation if the verb is not in the conditional mood or if it does not contain a modal verb. This constraint does not apply to EXCs.

(86)   Chi inviterebbe per sembrare importante!
        'The people he would invite to seem important.'

Also, the entire proposal depends on the fact that EXCs are factive, and this is basically determined by the FAC morpheme. This morpheme is stipulated because EXCs only embed in factive predicates and because they are not suitable questions and answers. However, this involves some redundancy, because we have to accept that factive predicates can select for factive clauses aside from propositions (or, rather, facts, as shall be discussed in chapter 5). Alternatively, it can be said that FAC disappears in embedded contexts, but then this move would go against Watanabe (1993)'s claim according to which propositions selected by factive predicates include an extra CP layer, which is where FAC is claimed to occur. Moreover, the reasons to believe that EXCs must contain FAC are less strong in languages such as Catalan, where EXCs do not easily embed in these predicates (see the entire discussion in chapter 5).

Finally, with regard to the semantics of alternatives, assuming that the denotation of a *wh*-exclamative is the same as that of a question by virtue of them including a *wh*-element is problematic. As Zanuttini and Portner (2003) point out, EXCs cannot be answered, which makes it undesirable to claim that the denotation of an EXC is the set of possible answers to the question. However, they get around this apparent problem by blaming factivity for it: Since the speaker already knows the answer, it does not make much sense to employ an EXC to ask a question. Nevertheless, it still seems inelegant to consider that the basic denotation of an EXC is contingent on the denotation of a question, since there are a few *wh*-words that are *E-only* (in their own terms). This means that they are only available in EXCs, because

they include an E-only morpheme. It is not obvious that these *wh*-words that will never introduce a question introduce a clause that denotes a set of possible answers.

2.2.2 Gutiérrez-Rexach (1996)

I now summarize Gutiérrez-Rexach (1996)'s analysis and, at the same time, mention some additional relevant data and compare explanations. Basically, Gutiérrez-Rexach takes up again the approaches by Elliott (1971, 1974) and Grimshaw (1979) and argues, contra Lahiri (1991) and Huddleston (1993), that there is evidence to claim that EXCs belong to a unique semantic type.

Gutiérrez-Rexach proposes an analysis based on the semantics of questions (just like Zanuttini and Portner (2003)). But where the latter postulate the existence of a FAC morpheme, the former argues that there is an EXC operator over propositions that turns an interrogative into an EXC. Specifically, he postulates that EXC is an illocutionary operator of type $< i, < s, << s, t >, t >>>$. i stands for *speaker* and s is a world variable. So it is not a truth-functional operator (e.g., like negation), but an operator over propositions. Here is the entire definition:

(87)   Let a be the speaker, w a world (typically the actual world), p a proposition, and P $\in$ EMOT (the set of emotive properties). Then,

EXC$=_{df}$ $\lambda a_i \lambda w_s \lambda p_{<s,t>} \exists P_{<s,<<s,t>,<e,t>>>}[P(w)(p)(a)]$

If a speaker a in a situation w utters a proposition p, *EXC(a)(w)(p)* will hold iff there is a relation P (the set of emotive factives) and p and a are in this set.

His analysis of interrogatives wants to capture exhaustiveness, so he proposes a denotation in the line of Groenendijk and Stokhof (1984) (see (89)).

(88)   How tall is John?

(89) $\lambda w'[\iota d[\text{tall}(w)(j,d)] = \iota d[\text{tall}(w')(j,d)]]$

According to (89), (88) denotes the set of worlds in which the maximal degree of John's tallness equals the maximal degree of John's tallness in the actual world.

Now that we have the exclamative operator and the basic semantics of the proposition, it has to be implemented so that we can distinguish embedded interrogatives and embedded

EXCs. Crucially, this author assumes that emotive factives can embed interrogatives. The following example is from (Gutiérrez-Rexach, 1996, 155).

(90) a. It amazes Bill which students are reading which books

b. $\text{Amaze}(w)(\lambda w'[\lambda x \lambda y[\text{Student}(x) \wedge \text{Book}(y) \wedge \text{read}(w)(y)(x)] = \lambda x \lambda y[\text{Student}(x) \wedge \text{Book}(y) \wedge \text{read}(w')(y)(x)]])(\text{Bill})$

(90) is not an EXC because the speaker who utters this sentence does not hold an emotive attitude toward the propositional content of the assertion. What the speaker does is describe an emotive attitude that holds between Bill and the proposition. Now consider (91):

(91) a. Bill found out how rich my parents are

b. $\text{Find out}(w)(\lambda w'[\iota d[\text{rich}(w)(\text{my parents}, d)] = \iota d[\text{rich}(w')(\text{my parents}, d)]])(\text{Bill})$

c. $\text{Find out}(w)(\lambda w'[\iota d[\text{rich}(w)(\text{my parents}, d)] = \iota d[\text{rich}(w')(\text{my parents}, d)]])(\text{Bill}) \wedge \text{EXC}(a)(w)(\lambda w'[\iota d[\text{rich}(w)(\text{my parents}, d)] = \iota d[\text{rich}(w')(\text{my parents}, d)]])$

Gutiérrez-Rexach (1996) formalizes two interpretations for (91) with two different denotations. (91c) corresponds to the exclamative reading and its denotation contains the denotation of (91b), which corresponds to the interrogative reading. The additional material (91c) possesses is the operator over propositions EXC and the arguments it needs to yield a truth value, namely a speaker, a circumstance and a proposition. Let us proceed step by step: This representation is a conjunction of two propositions. The first one says that Bill found out how rich his parents are, and the second one states the speaker's attitude toward the fact that his parents are so rich.

The meaning of a matrix exclamative such as (92a) could be captured by means of the following formula. Realize that the proposition that feeds EXC is the very same proposition that an interrogative denotes, as stated in (89).

(92) a. How tall John is!

b. $\text{EXC}(a)(w)(\lambda w'[\iota d[\text{tall}(w)(j, d)] = \iota d[\text{tall}(w')(j, d)]])$
       iff $\exists P \in \text{EMOT}[P(w)(\lambda w'[\iota d[\text{tall}(w)(j, d)] = \iota d[\text{tall}(w')(j, d)]])(a)]$

Under his approach, in (92a), the speaker expresses his/her attitude toward the fact that John is d-tall, and the degree of John's tallness is greater than any other degree in the scale of tallness given his expectations. However, this second requirement does not show from the

denotation in (92b). According to the author, this part of the meaning is what explains the facts in (93).

(93)   a. It's amazing how very/unbelievably/extremely long he can stay under water

       b. *It's amazing how slightly/fairly/reasonably long he can stay under water

The adverb *reasonably* does not match in a context where some degree needs to exceed the level of expectations. According to Gutiérrez-Rexach, extreme degree denotation is absent in interrogatives, which is another property that draws a distinction between EXCs and interrogatives. Consider the following example:

(94)   *How very/extremely/unbelievably hard is this exam?

What (94) highlights is that an interrogative cannot include an extreme-degree denoting adverb modifying an adjective which is part of the *wh*-DegP. Though Gutiérrez-Rexach may be right, it is not out of doubt whether the ill-formedness of (94) concerns the semantics or the pragmatics. Notice that this example would be equally odd with the adverb *reasonably* (*# How reasonably hard is this exam?*).

Gutiérrez-Rexach (1996) proposes to treat this part of the meaning of an EXC as an implicature, specifically, by assuming that degrees establish an ordering relation to each other (namely, $\prec_a$), which hinges on the speaker's expectations. This relation generates the following implicature, where w' w stands for the accessibility relation between worlds:

(95) $\forall d' \in D_{tall} \forall w' \ w[d' \prec_a d \wedge \text{tall}(w)(d') \rightarrow$
       $\neg \text{EXC}(a)(w)(\lambda w''[\iota d'[\text{tall}(w')(j, d')] = \lambda d'[\text{tall}(w'')(j, d')]])]$

Finally, let us see how Gutiérrez-Rexach (1996) deals with factivity. Interestingly, he attributes this property to the emotive factive predicates that embed exclamatives. He argues against Zaefferer (1983) that factivity is not part of the exclamative nature of these predicates and the nature of the EXC operator. That is, EXCs are not factive, but the predicates that embed them are. In particular, he argues that factivity is responsible for the non-distributivity of emotive predicates, as is illustrated in the following examples from (Gutiérrez-Rexach, 1996, 157).

(96)   a. It is astonishing that Mia knows Karl and Noam.

       b. It is astonishing that Mia knows Karl.

Zaefferer (1983) highlights that (96a) does not entail (96b), whereas this would be the case in the following examples where (97a) does entail (97b).

(97)   a. It is the case that Mia knows Karl and Noam.

        b. It is the case that Mia knows Karl.

Zaefferer resorts to the "exclamative nature" of predicates like *astonishing* and the action of the EXC operator to explain this lack of entailment. But Gutiérrez-Rexach (1996) shows that *wh*-interrogatives embedded in factive predicates lack this entailment, too.

(98)   a. It's astonishing who came to the party.

        b. It is amazing which boys are dating which girls.

Gutiérrez-Rexach interprets these data as evidence that this lack of entailment derives from the fact that these predicates are factive.

Let us now come back to the relevant data and check in what ways Gutiérrez-Rexach (1996) and Zanuttini and Portner (2003)'s accounts differ. To begin with, Gutiérrez-Rexach, like Elliott (1971), points out that emotive factives (the intersection of emotive predicates and factive predicates) can select EXCs and cannot be negated in this situation.

(99)   a. It is amazing how very cute he is

        b. *It isn't amazing how very cute he is

More specifically, Gutiérrez-Rexach argues that a negated emotive predicate does not qualify as properly emotive (cf. *awful* vs. *not awful*). In such a situation neither a *that*-clause nor a *wh*-exclamative can be embedded, which suggests that these negated predicates do not work as factives (contrary to *I can't believe*, for instance). The conclusion to be drawn from these restrictions is that these embedded EXCs pattern with presupposed *that*-clauses. By contrast, Zanuttini and Portner (2003) add a few examples to the preceding ones to argue that the ill-formedness of (99b) is due to the fact that negation contradicts the scalar implicature.

(100)   a. Isn't it amazing how very cute he is?

        b. *Is it amazing how very cute he is?

Zanuttini and Portner claim that in (100a) the speaker expects a positive answer, so the scalar implicature by which he is cuter than the alternatives under consideration is not contradicted. But in (100b), the speaker questions the amazingness of the referent's cuteness and this equals casting doubts on the implicature. In other words, the meaning of *amazing* is very close to the meaning of widening – i.e., it involves the consideration of two quantificational domains, one which is contains the actual set of propositions and another one that contains the expected set of propositions. For a similar approach, see D'Avis (2002) and Abels (2005), and chapter 5 section 5.3 –, and negating *amazing* must imply saying that widening cannot occur, which is incompatible with the widening that occurs in the embedded EXC.[5] Summarizing, whereas Elliott (1971, 1974) and Gutiérrez-Rexach (1996) attribute this contrast to factivity (i.e., it is a semantic issue), Zanuttini and Portner (2003) consider it a pragmatic mismatch.

Afterwards, Gutiérrez-Rexach (1996) argues against Elliott (1971) and Grimshaw (1979) that not every *wh*-complement of a factive predicate has to be construed as an EXC, on the basis of the lack of ambiguity in (101b).

(101)   a. I know how tall he is → interrogative or exclamative interpretation

         b. I know who Ed married → only interrogative interpretation

According to Gutiérrez-Rexach, there are two possible paraphrases in (101a). One would be 'I know the answer to the question *How tall is he?*' and another one would be one in which the speaker knows that the referent of *he* is extremely tall. Crucially, this latter kind of reading is unavailable in (101b), and this must be because what *know* embeds in (101a) is an EXC and not an interrogative. Zanuttini and Portner (2003), on the other hand, argue, like Elliott and Grimshaw, that *wh*-clauses embedded in predicates like *It's amazing* are EXCs, even if they do not have a matrix counterpart. For example, *It's amazing who came.* Their main argument is that these predicates cannot embed a clause introduced by *whether*, which means that these *wh*-clauses cannot be interrogatives.

To recap, according to Gutiérrez-Rexach (1996), there is empirical evidence that some *wh*-clauses constitute a semantic type which is different from interrogatives. Unlike Zanuttini and Portner (2003), who consider factivity the key to distinguish interrogatives from EXCs,

___

[5]Perhaps, the oddity of *??It isn't amazing that you have come* is comparable to (99b), and here no widening arises, since there is no *wh*-element. In other words, even though the facts seem analogous, they cannot be both explained by arguing that a scalar implicature is being denied.

Gutiérrez-Rexach proposes that it is the presence of the operator over propositions EXC. This operator takes as argument the denotation of the *wh*-clause interpreted as an interrogative, so, like Zanuttini and Portner, he bases his analysis on the denotation of questions.

This account has some strong points, such as the fact that Gutiérrez-Rexach (1996) treats EXCs as degree exclamatives, even though his concept of *exclamative* is perhaps too broad, i.e., it includes clauses that he calls *NP-modifier exclamatives*, which do not share the pragmatics of *wh*-clauses, because – as Zanuttini and Portner (2003) argue – they can be used as answers.

(102)   He is such an intelligent man!

Another interesting insight is that he detects that Elliott (1971) and Grimshaw (1979) may be wrong in accepting that any *wh*-sentential complement of a factive predicate must be an EXC. Realize that Elliott's and Grimshaw's assumption would yield an asymmetry between embedded and unembedded sentences, because only a few *wh*-items can introduce a matrix EXC, but any *wh*-word can introduce a *wh*-clause that is embedded in a factive predicate in English. Finally, he highlights the fact that one of the variables that need to be taken into account in the denotation of an exclamative is the speaker (i.e., i, a specific class of e, but not any possible e).

As for the weaknesses, Gutiérrez-Rexach (1996)'s analysis does not deal with the idiosyncratic particular discourse contribution of EXCs. And, just like the previous proposal, he bases his analysis on the semantics of questions, which will run into a few problems if we want to account for EXCs in Catalan (see chapter 5 sections 5.1 and 5.3).

2.3   Summary

In this chapter I have reviewed the behavior of EXCs in Catalan. I have observed that they contain a *wh*-element and a degree expression in the left periphery, and I have stated that, although they share some pragmatic properties with assertions, they make an idiosyncratic contribution to discourse. Each of these facts is to be accounted for in chapters 3, 4 and 5, where the proposal in this thesis is presented.

The second part of the chapter has been devoted to summarizing the previous proposals concerning the denotation of EXCs. A few relevant concepts have been clarified, such as factivity and extreme degree, and some interesting puzzles about EXCs in English have been

commented on.

In the following chapters I will show how my proposal differs from the ones that have been presented in section 2.2 and how it is able to account for the Catalan examples shown in 2.1.

Chapter 3

The syntax of exclamatives

This chapter highlights the main syntactic properties of *wh*-exclamatives (henceforth EXCs) and proposes an analysis of the exclamative construction, so that the semantics can be built on it. Hence, the two goals of this chapter are to account for some of the puzzles that have been presented in the previous chapter that can be attributed to syntax and propose an analysis that conforms to the data from Catalan.

The syntactic framework I assume is the recent developments of the Minimalist Program. This means that I understand the combination of lexical items as a derivational process that works step by step according to the operation called *Merge*. There are two types of Merge: External Merge is the operation by which an object from the numeration combines with another object to create a new object, as in (103a); Internal Merge (or Move) is the operation by which an object that is already part of the derivation combines with another object and leaves a silent copy (which is here represented as a trace for the sake of simplicity) on its base generation place, as in (103b).

(103)   a.

object A   object B

b.

A   C

C t_A B

The main goal of my analysis is to explain the maximal amount of facts with the minimal amount of stipulations. Movement is feature triggered and, contrary to other proposals within the generativist framework, these features are treated here as being formal in nature: They do not bear any semantic weight. That is, I will not assume the cartography project of the

left periphery promoted by Rizzi (1997) or any other solution that requires the existence of semantic-flavored projections that are descriptively useful but not explanatory enough.

The most salient syntactic property of EXCs is the presence of *wh*-movement. Depending on what constituent is moved, two types of EXCs are considered. The first type undergoes DP-movement, as in (104a), and the second one, DegP-movement, as in (104b).

(104) a. [$_{DP}$ Quina pel·lícula tan entretinguda] que vam veure a l'avió
DP what movie so entertaining that AUX.we to.see at the plane
'What an entertaining movie we saw on the plane!'

b. [$_{DegP}$ Que entretinguda] que va ser la pel·lícula!
DegP how entertaining that AUX.it to.be the movie
'How entertaining the movie was!'

As will be seen in section 3.1.1, I assume that *wh*-interrogatives in Catalan move their *wh*-phrases to Spec,T. However, I propose that *wh*-phrases in EXCs move a step further to Spec,C, which is suggested by the presence of the overt C^0 *que*. This is depicted in the following phrase marker:

(105)
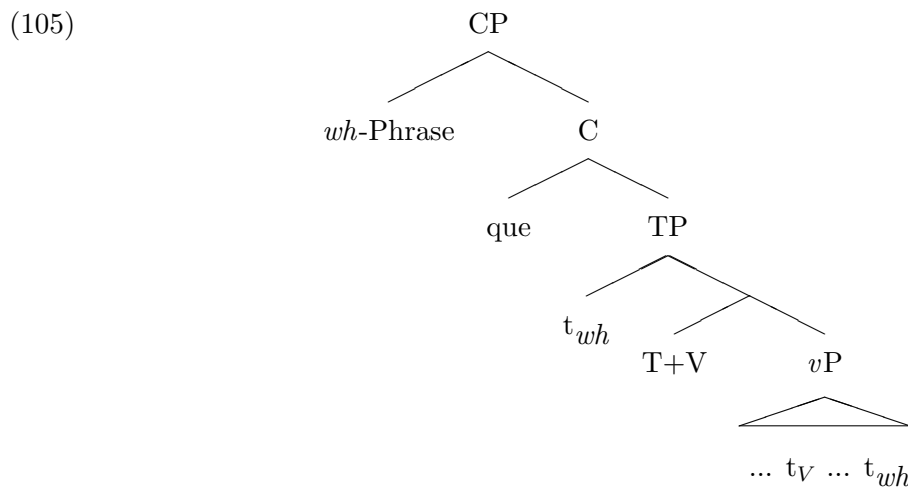
In addition to *wh*-movement, another crucial aspect of the analysis presented in this thesis is the consideration of an EXC as a degree construction. The analysis of the degree construction that I assume is one in which there is a functional category, Deg that selects AP as its complement (Abney, 1987; Larson, 1988; Corver, 1990, 1993; Kennedy, 1999) and Kennedy (2002). Though this assumption is not without problems (see Bhatt and Pancheva (2004) for a comment on the two main analyses, which they call *the classical view* and the *common alternative* and a new bold proposal based on countercyclic merger of the sentential

complement where the degree operator takes scope), it fits perfectly the semantics I propose in chapter 4 and it is syntactically elegant.

(106)

```
                          DegP
                         /    \
                     Deg'      \
                    /    \      \
                 Deg⁰    AP   degree clause
                  |       __
                 -er     tall
```
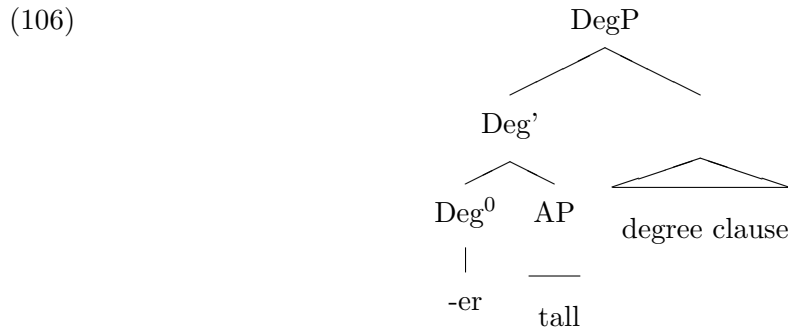
Above is the *common alternative* I base my analysis on. Characteristically, where the degree clause lies will be empty in EXCs, just like in absolute constructions, as in *Pau is tall* (where the semantic contribution of the degree clause is obtained by a value that is recovered from context).

Crucially, contrary to former generative approaches to degree constructions (see for example Heim (2000, 2001); Matushansky (2002) or Bhatt and Pancheva (2004)) I do not adopt Quantifier Raising for the degree operator in an EXC. Along with Kennedy (1999), I present a non-quantificational analysis of the degree operator, basically because there is no evidence of covert movement of the degree word that occurs in EXCs (besides overt *wh*-movement) and because there is no type mismatch to be solved, given the semantics that I am going to propose for *tan*. However, I treat *tan* as an operator and not as a modifier like *very*, because *tan* – and not *very* – is a relational word, i.e., it denotes a relation between two degrees. In the case in question, it establishes a relation between the actual degree of ADJ-ness that holds of an individual and a standard degree that is high, as will be developed next chapter.

The two types of EXCs mentioned above in (104a) and (104b) not only have in common that they both exhibit *wh*-movement. They necessarily include a DegP headed by a degree operator. Nevertheless, it seems that in (104b) the degree operator is a *wh*-quantifier. I will claim that *que* ('how') and *tan* ('so') are the same degree operator, except for the fact that the former includes an additional feature: [+wh]. Most importantly, both (104a) and (104b) contain a DegP with the same syntactic structure.

Here is the syntax of the entire construction. (107a) corresponds to (104a) and (107b), to (104b).

(107)   a.

```
                                      CP
                        ┌──────────────┴──────────────┐
                       DP_i                          C'
                   ┌────┴────┐                  ┌─────┴─────┐
                  D⁰         NP                C⁰           TP
                   │      ┌───┴────┐            │      ┌─────┴─────┐
                 quina   N⁰       DegP         que   vam veure t_i a l'avió
                         │     ┌───┴───┐
                    pel·lícula Deg⁰    AP
                               │    ┌──┴──┐
                              tan  entretinguda
```

b.

```
                                      CP
                        ┌──────────────┴──────────────┐
                      DegP_i                          C'
                   ┌────┴────┐                  ┌──────┴──────┐
                 Deg⁰        AP               C⁰             TP
                  │       ┌──┴──┐              │        ┌─────┴─────┐
                 que  entretinguda           que      T_j          XP
                                                       │       ┌────┴────┐
                                                     va ser    DP        X'
                                                            ┌───┴──┐  ┌───┴───┐
                                                         la pel·lícula X⁰   DegP
                                                                        │     │
                                                                       t_j   t_i
```
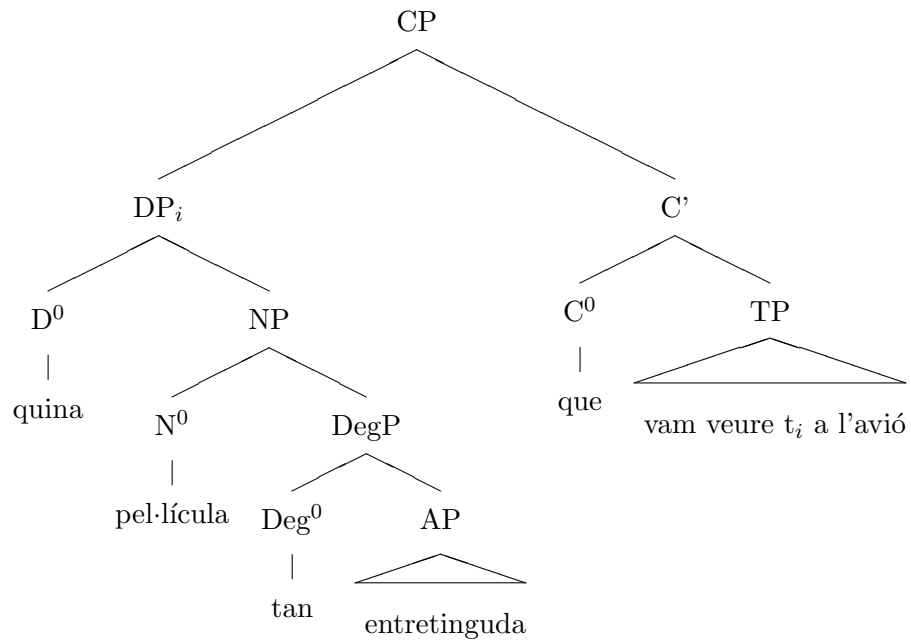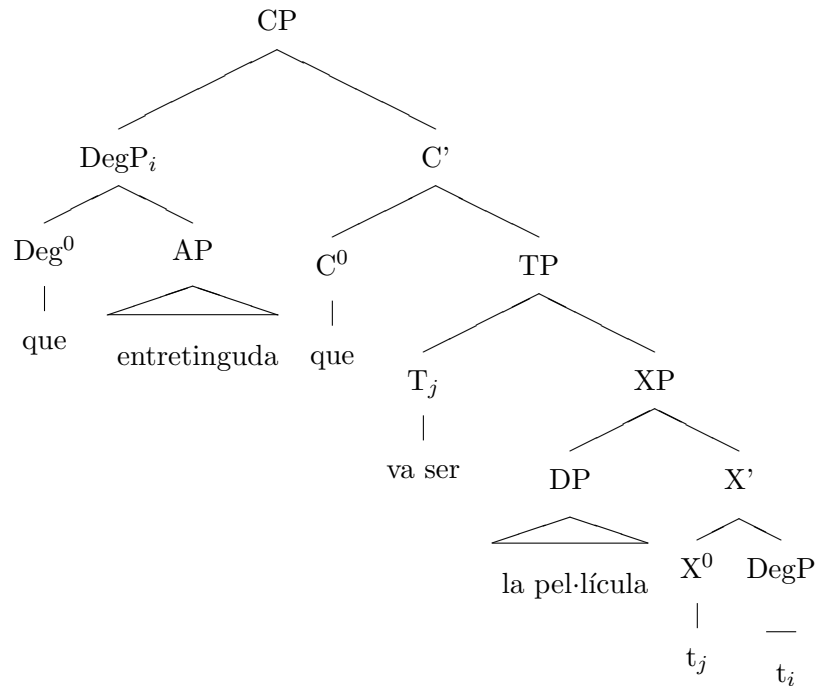
The first section is concerned with *wh*-movement. In particularly, I present my claims regarding *wh*-constructions and challenge the analogy of interrogatives and relatives with EXCs; I then propose that EXCs resemble result clause constructions devoid of their *that*-clause. The chapter closes with an analysis of the DP that hosts both the *wh*-feature and the degree operator.

3.1   The syntax of the *wh*-exclamative clause

3.1.1   *Wh*-movement

Following Barbosa (2001) and Vallduví (1992), among others, I assume that *wh*-clauses in interrogatives move to Spec,T in Romance null subject languages like Catalan. And in accordance with Benincà (1996); Zanuttini and Portner (2003) and Castroviejo (2004), among others, I support the idea that *wh*-phrases in exclamatives move one step farther. Let us first summarize a few arguments that have led the previous authors to maintain that Spec,T is the landing site for *wh*-phrases in interrogatives in languages like Catalan, in contrast to Germanic languages.

Barbosa (2001)'s main argument in favor of the assumption that *wh*-words land at Spec,T is the impossibility to account for the absence of the word order Auxiliary-Subject-Verb in Romance *wh*-clauses. This is the prototypical word order in Germanic, and it is explained via movement of Infl to the position of the head of CP. In simple tenses, V moves first to Infl and, then, both move to C. But in compound tenses, only Infl (where the auxiliary stays) moves. According to this author, Rizzi (1991, 1997)'s efforts to explain why there is this contrast between Romance and Germanic are not satisfactory enough. Let us take a look at the data.

(108)   Italian

      a. Che   cosa   ha   detto Maria?
          what thing aux said   Maria
          'What has Maria said?'

      b. *Che cosa   ha   Maria detto?
          what thing aux Maria said

(109)   Catalan

      a. Quina cosa   ha   dit   la   Maria?
          what   thing aux said the Maria
          'What has Maria said?'

      b. *Quina cosa   ha   la   Maria dit?
          what   thing aux the Maria said

(110)   What has Maria said?

In addition to the compulsory adjacency between the *wh*-phrase and the auxiliary, which is pervasive in Romance null subject languages, neither a DP nor an adverbial can occur in

between the *wh*-phrase and the verb:

(111)   a. Quina pasta de dents utilitzes normalment?
            what   paste of teeth use.you usually

            'What tooth paste do you usually use?'

        b. *Quina pasta de dents normalment utilitzes?
            what   paste of teeth usually   use.you

The left periphery in Romance has been approached from the viewpoint of the paradigm of the Split CP and the cartography project (Rizzi, 1997). The most widely accepted idea is that *wh*-interrogatives have FocP as their landing site, so there is a spot between IP (which contains T) and FocP that can be filled with the subject or an adverbial. To account for the facts in (111), authors such as Rizzi (1997) need to claim that the verb rises to Infl and then V+Infl move towards Focus^0 to comply with the *Wh*-Criterion (Rizzi, 1991). This is how the surface word order arises:

(112)   [$_{FocP}$ *wh*-Operator [$_{Foc}$ V+Infl] [$_{IP}$ t$_i$] ...]

So far so good. But when one tries to derive the surface word order in sentences with compound tenses like (109), it is difficult to explain why the verb cannot remain in V if Infl (the auxiliary) moves to Spec,Foc and the subject lies in Spec,Infl, especially if we take into account that Infl to Foc movement happens in Romance independently of *wh*-movement, so the word order Aux-Subj-V is by no means rare. In other words, it is not obvious what prevents the existence of the following structure:

(113)

```
                      FocP
                      /  \
            wh-operator    Foc
                           /  \
                         Aux    IP
                                /  \
                             Subj    VP
                                     / \
                                    ‾‾‾‾‾
                                    ...V...
```

Here are some examples from the Italian Aux-to-COMP construction quoted in (Barbosa, 2001, 53) from Rizzi (1982):

(114)   a. Se lui avesse capito al volo, tutto sarebbe andato bene

'If he had understood immediately, everything would have gone smoothly.'

b. *Se avesse lui capito al volo, tutto sarebbe andato bene.

c. Avesse lui capito al volo, tutto sarebbe andato bene.

d. *Se lui avesse capito al volo, tutto sarebbe andato bene.

What the data in (114) show is that we can have the word order Auxiliary-Subject-Participle just in case the complementizer is absent (the only sentences that are ruled out are the ones containing *se* ('if')). That is, this word order is possible only when the position for the auxiliary to land in is not occupied by a complementizer. This suggests that there is Infl-to-Foc (or T-to-C) movement in cases other than *wh*-movement. If it exists in Romance, the question would be why it does not occur when there is *wh*-movement. Of course, if we do not claim that T moves to C in *wh*-interrogatives, we do not encounter this problem.

So far, evidence has been presented that casts some doubts on the need for V to move to C to explain subject-verb inversion in interrogatives in null subject Romance languages. Moreover, there is evidence in favor of considering Spec,T as a landing site for A' movement in Catalan. Vallduví (1992) shows that negative quantifiers as well as other quantifiers such as *poques* ('few'), *alguna cosa* ('something') or *tothom* ('everybody') force adjacency with the verb when they appear at the beginning of the sentence, just like *wh*-phrases. This does not happen with clitic left dislocation (CLLD), though.

(115)   CLLD vs. negative quantifiers

a. L'empresa   **els dolents** no   els vol
    the company the bad.PL   NEG CL want.it
    'The company doesn't want the bad ones.'

b. **Els dolents** l'empresa   no   els vol
    the bad.PL   the company NEG CL want.it
    'The company doesn't want the bad ones.'

c. Els dolents **ningú**   (no) els vol
    the bad.PL nobody NEG CL want.it
    'Nobody wants the bad ones.'

d. ***Ningú** els dolents (no) els vol
    nobody   the bad.PL NEG CL want.it

(116)   Negative quantifiers, like *wh*-words

a. L'empresa   (a) **qui** no   vol?
   the company (to) who NEG wants

   'Who doesn't the company want?'

b. *(A) **qui** l'empresa   no   vol?
   (to) who the company NEG wants

These data suggest that *wh*-phrases in Catalan need to be adjacent to V, so they are most likely to occupy Spec,Infl. And this is not an idiosyncracy of *wh*-words, but also of a group of items that share this same restriction. Through these facts Vallduví (1992) claims that Spec,Infl is occupied by a class of words, which he calls *quantificational operators*, that include both *wh*-interrogative phrases and negative quantifiers. They undergo A' movement and land in an A' position (Spec,Infl) with no need for a focal intonation. These items also share the ability to bind variables and the fact that they are non referential. In addition, they are in complementary distribution.[1]

As a last remark, it still remains unexplained where the subject stays in *wh*-clauses. As a matter of fact, the previous assumptions conform to theories that give evidence that Catalan is a VOS language (Rosselló, 2000; Vallduví, 2002).[2] That is, the subject in Catalan might not need to move to Spec,T to check Nominative case – notice that, according to this assumption, there would not even arise the need to call the word order in interrogatives *subject-verb inversion*, because this would be the default word order.

In sum, the syntax for *wh*-movement in interrogatives assumed here is depicted in the following tree:

(117)   Interrogative *wh*-movement

---

[1]In more recent developments of the Minimalist Program, where derivations contain relevant bounding nodes called *phases* (Chomsky, 2001a,b, 2005), C is considered a phase and its specifier is the landing site of *wh*-words for languages like English. Interestingly, it has been argued that T could be a phase in Romance (see for example Gallego (2004)), which would mean that *wh*-words have Spec,T as their landing site in these languages, in accordance with the assumptions in this thesis.

[2]And also to data from acquisition that reveal that Catalan children do not show any trace of T-to-C (or Infl-to-Foc) movement, which is evident in English speaking children (cf. Rosselló (1997)).

TP
wh-Phrase
T+V   vP
... t$_V$ ... t$_{wh}$
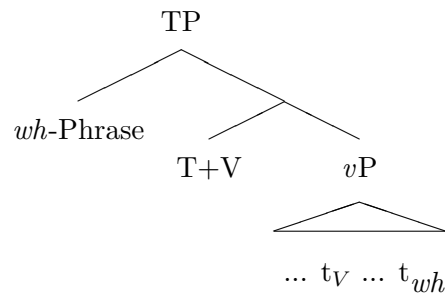
Turning back to *wh*-EXCs, some additional comments are in order. Both interrogatives and EXCs contain *wh*-movement, but the latter include a complementizer *que* – a lexical realization of C^0 –, which suggests that CP projects, contrary to what has been assumed for *wh*-interrogatives, in which the maximal projection is plausibly TP. I will have to stipulate that there is an additional movement through CP that must be triggered by the need to check a formal feature at CP. Here is my proposal for *wh*-movement in EXCs:

(118)   Proposed structure for *wh*-movement in EXCs

CP
wh-Phrase   C
que   TP
t$_{wh}$
T+V   vP
... t$_V$ ... t$_{wh}$
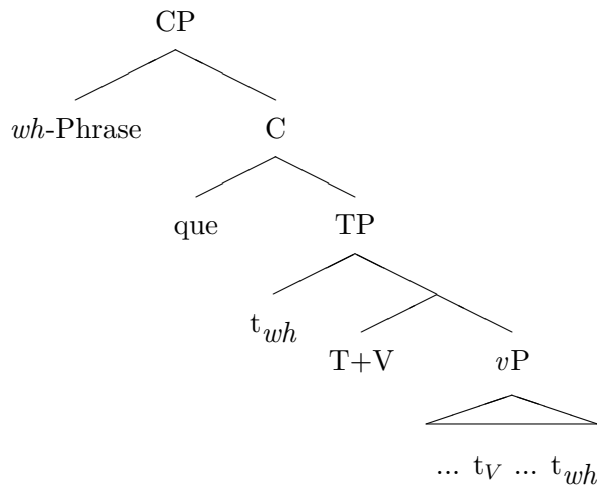
Previous proposals have attempted to describe how EXCs work within a more flexible view of the features allowed to be part of the numeration and the formal categories that project at the left periphery. Here are two examples of syntactic analyses. The first one, by Zanuttini and Portner (2003), assumes recursion of CP basing this assumption on a factivity morpheme that is located in Spec,CP1. This is reminiscent of Watanabe (1993), who claims that factivity implies an additional instance of CP, which implies another bounding node, and thus explains why factivity is an island for movement. As a matter of fact, Zanuttini and Portner allow for as many CPs as required by crosslinguistic variation. So, whereas in Italian there should be a third CP to host left-dislocated phrases, in English two are enough in EXCs.

(119)   Zanuttini and Portner (2003)

    a.

```
                          CP2
                         /    \
                       WH      C'
                              /   \
                            C      CP1
                                  /    \
                               (XP)     C'
                                       /  \
                                      C    IP
                                      |    ―
                                   che/V   ∅
```
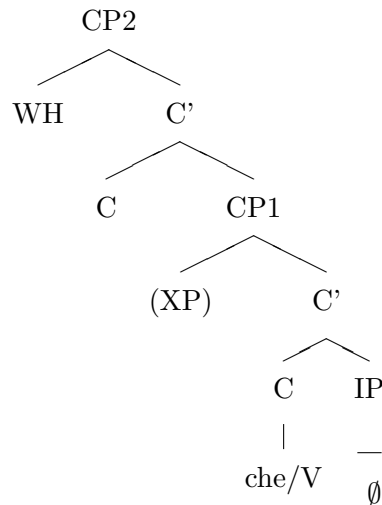
    b.   Che alto che è!
        how tall that is
        'How tall he is!'

    c. $[_{CP}$ che alto $[[_C$ ∅$]$ $[_{CP}$ FACT $[_C$ che$]$ IP$]]]$

In contrast, the analysis by Ambar (2003) shows her own interpretation of the left periph-
ery in the spirit of Rizzi (1997), where peripheral projections have a semantic and pragmatic
flavor (e.g., assertive phrase, evaluative phrase, etc.). Specifically, she assumes that EXCs
move higher than interrogatives (an assumption that is held by other authors to account for
the facts of EXCs in Romance languages. See for example Benincà (1996); Goria (2002) or
Gutiérrez-Rexach (2001)), that factivity is checked at Spec,AssertiveP, that evaluation (Am-
bar, 1996, 1998) is checked at Spec,EvaluativeP and that the complementizer *que* is able to
check its assertive feature by merge when EvaluativeP selects AssertiveP.

(120)   Ambar (2003)

    a.   XP $[_{EvaluativeP}$ $[_{Evaluative'}$ $[_{AssertiveP}$ $[_{Assertive'}$ [XP $[_{WhP}$ $[_{Wh'}$ $[_{FocusP}$ $[_{Focus'}$ [XP
        $[_{IP}]]]]]]]]]]]]$

    b.   Que livro que o   João leu!
        what book that John read
        'What a book John read!'

c.

```
                              EvP
                         ╱          ╲
                  que livro_i        Ev'
                                  ╱      ╲
                               ...        AssP
                                       ╱      ╲
                                    ...         Ass'
                                             ╱      ╲
                                          que         XP
                                                   ╱     ╲
                                              o João_j    WhP
                                                        ╱    ╲
                                                     t_i      Wh'
                                                           ╱      ╲
                                                        ...        FocP
                                                                ╱      ╲
                                                             t_i        XP
                                                                      ╱    ╲
                                                                   ...      IP
                                                                          ╱  ╲
                                                                     t_j leu t_i
```
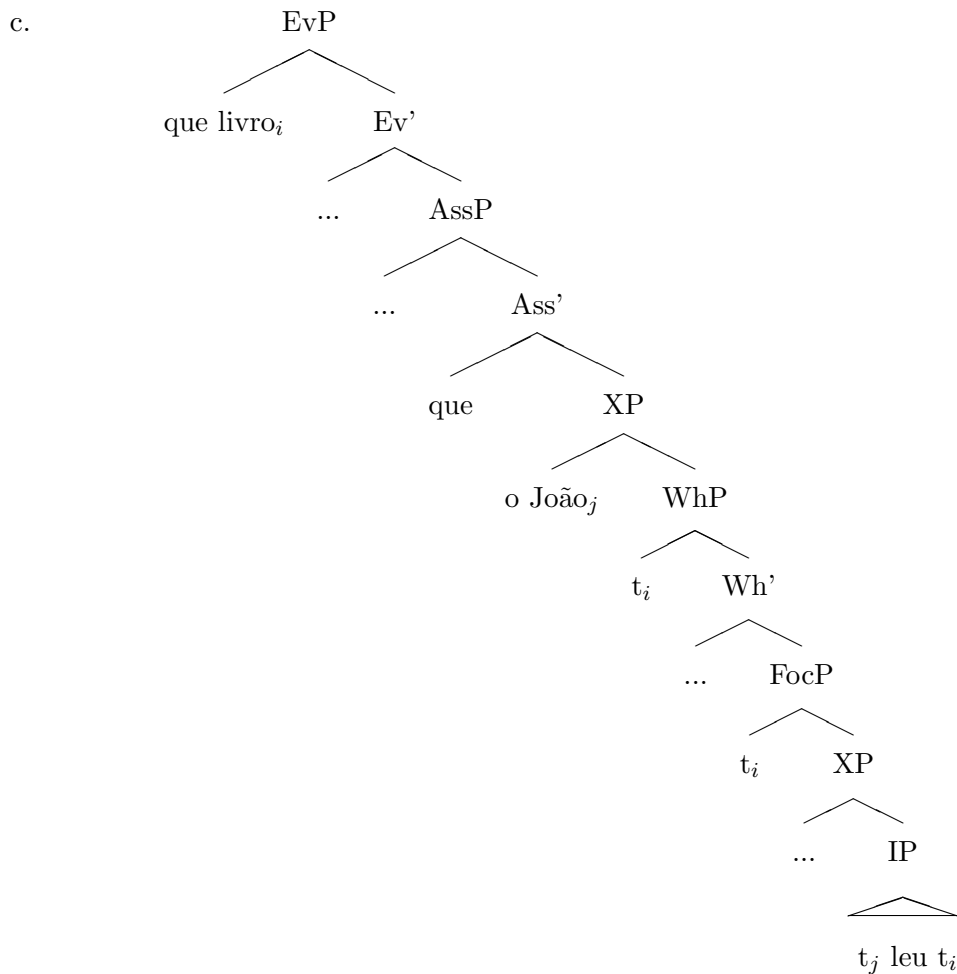
Coming back to my proposal, EXCs are *wh*-constructions and, as such, their *wh*-phrase should land at Spec,T like *wh*-phrases in interrogatives. Nevertheless, EXCs in Catalan can contain a particle (*que*) that is interpreted as a complementizer (see below), which occupies C^0. This leads us to assume that the *wh*-phrase in EXCs moves farther up to Spec,C. How can we account for this fact and for the fact that in Catalan (but not in French and Portuguese) there is compulsory adjacency between the complementizer and the verb? Let us repeat the relevant examples here for ease of presentation:

(121)   a. Quins ingredients tan bons que [$_V$ té] [$_{Subject}$ aquesta sopa]!
            what ingredients so   good that has   this   soup
            'What nice ingredients this soup has!'

        b. Quins ingredients [$_V$ té] [$_{Subject}$ aquesta sopa]?
            what ingredients has   this   soup
            'What ingredients does this soup have?'

(122)   a. Que alt que és en Pau!
            how tall that is the Pau

            'How tall Pau is!'

        b. *Que alt que en Pau és!
            how   tall that the Pau is

What these data show is that the verb always precedes the subject in EXCs ((121)) – just like in interrogatives –, and there is adjacency between the complementizer and the verb ((122)). To make sure that *wh*-phrases in EXCs and interrogatives follow the same path, assume they both land at Spec,T. Regardless of whether or not Spec,T is the position where *wh*-phrases check [+wh], the complementizer at C^0 in EXCs is interpreted as evidence in favor of an additional movement to Spec,C.[3]

My assumptions as far as *wh*-movement are depicted in the following trees:

(123)   a. Quins ingredients tan bons que té aquesta sopa!

            'What nice ingredients this soup has!'

        b.
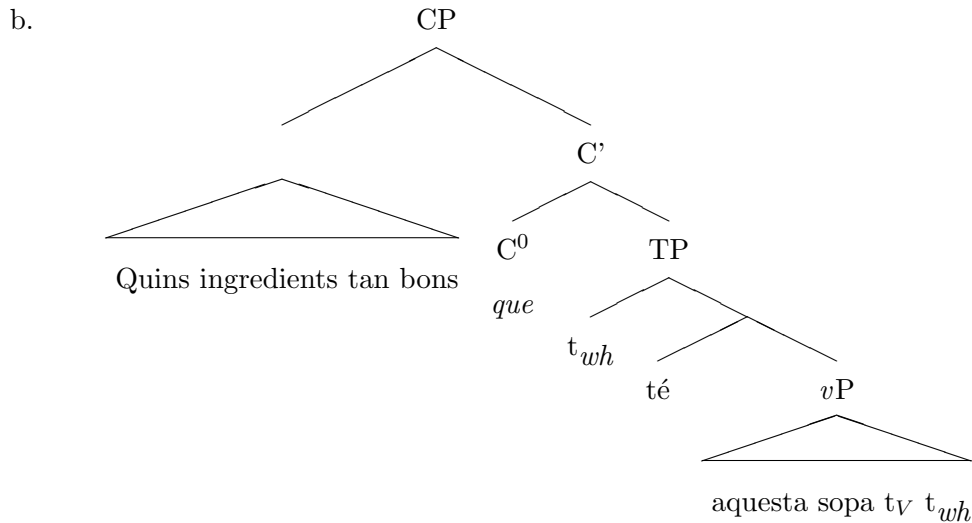
Given the fact that a silent copy of the *wh*-phrase (a *wh*-trace) lies in Spec,T we can capture the constraint that the subject cannot occur between the *wh*-phrase and the verb.

---

[3]Of course it should be examined how/if this analysis can account for the occurrence of the subject between the *wh*-word and the verb when the *wh*-word is a relative pronoun. I shall leave this for future research.

(1)   La cullera amb què   (la   Maria) menja (la   Maria) és meva
      the spoon with what (the Mary) eats   (the Mary) is mine

      'The spoon Mary eats with is mine.'

Apart from achieving a certain parallelism between interrogatives and EXCs, this proposal has a further advantage: There is no need to believe that V moves to C^0. Notice that, in the assumption that interrogatives involve T-to-C movement, we should have admitted the need for an extra CP projection, because C^0 is lexically realized and cannot be occupied by two items (*que* and V) at once. So, even though there is *wh*-movement and inversion, and there is a lexical complementizer at C^0, I have not postulated the existence of an additional projection. About the factive morpheme that Zanuttini and Portner (2003) argue occupies the Spec of the doubled CP, I will make no use of this notion to account for the semantics of EXCs and, hence, will not assume the syntactic realization of this semantic property.

I conclude by saying that I will remain silent on a number of issues to avoid stipulations that will not lead us to a better understanding of the meaning of EXCs. These include why not all *wh*-exclamative words allow for the occurrence of the complementizer *que*, why the complementizer *que* is optional when it is available and why the Comp Filter is violated in EXCs (recall that this principle would disallow Spec,C and C^0 to be both occupied by lexical elements).

3.1.2   The particle *que*

The previous comparison between interrogatives and EXCs provided evidence that the only syntactic property they have in common is the inclusion of a [+wh] feature that moves a constituent sentence initially. Now it is time to see to what extent EXCs resemble relatives. The idea I want to pursue is that *que* in relatives and in EXCs is the same semantically vacuous item, namely the lexical realization of C^0. In (124a), *que* is part of an EXC, whereas in (124b) it is part of a relative clause.

(124)   a. Quines bestieses   **que** diu la   Maria!
            what   stupid things that says the Mary
            'What stupid things Mary says!'

        b. Les   bestieses   **que** diu la Maria fan   riure a tothom
            the.PL stupid things that says the Mary make laugh to everybody
            'The stupid things that Mary says make everyone laugh.'

Nonetheless, even if both EXCs and relative clauses contain a complementizer, a relative clause, in Kayne (1994)'s terms, would be analyzed like (125a), whereas the structure I propose

for EXCs is as in (125b). Realize that the maximal projection in a relative clause is a DP, whereas in EXCs, it is a CP.

(125) a.

```
                              DP
                          ⟋        ⟍
                       D⁰            CP
                       |          ⟋     ⟍
                      the    things_i     C'
                                        ⟋    ⟍
                                 C⁰[+rel]      TP
                                   that       ⟋‾⟍
                                            he eats t_i
```

b.

```
                              CP
                          ⟋        ⟍
                       DP              ⟍
                     ⟋‾‾⟍        C⁰      TP
                quines coses_i   que    ⟋‾⟍
                                      menja t_i
```
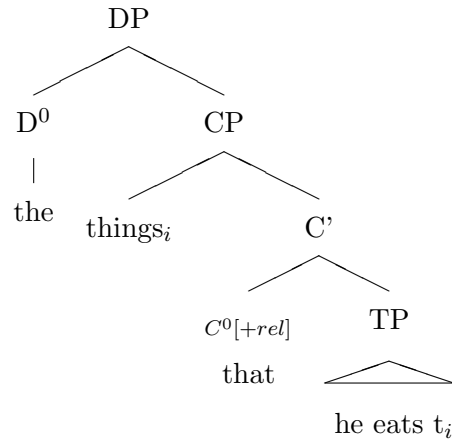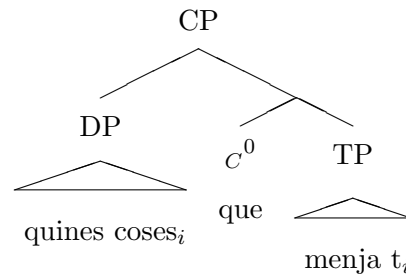
The fact that EXCs and relative clauses should be treated differently is supported by some evidence. To begin with, in EXCs, the DP that precedes the complementizer contains [+wh], which is absent in relative clauses in Catalan (though not in free relatives in English).

(126) ... un pastís que ha   preparat en Ferran
       ... a   cake   that aux.he prepared the Ferran
       '... a cake that Ferran baked.'

(127) Quin pastís que ha   preparat en Ferran!
       what cake   that aux.he prepared the Ferran
       'What a cake Ferran baked!'

Also, the adjacency between the complementizer and the verb that is required in EXCs is not a constraint on relative clauses, although the occurrence of the subject between the complementizer and the verb is a rather marked option:

(128) a. Les coses que (la Maria) menja (la Maria) són molt exòtiques
          the things that (the Mary) eats   (the Mary) are very exotic
          'The things Mary eats are very exotic.'

b. Les coses que (*la   Maria) menja (la   Maria)!
the things that (*the Mary) eats   (the Mary)
'The things Mary eats!'

Finally, the complementizer is compulsory in relative clauses in Catalan when there is not an overt relative pronoun ((129)), whereas it is optional in EXCs ((130)).

(129) a. Les   coses *(que) diu la   Maria són molt divertides
the.PL things that   says the Mary are very funny
'The things that Maria says are very funny.'

b. La cullera amb què (*que) cuina la   Maria s'ha   trencat
the spoon   with what that   cooks the Mary AUX.it broken
'The spoon with which Mary cooks has broken.'

(130) Quines coses (que) menja la   Maria!
what   things that   eats   the Mary
'What things Maria eats!'

Notice that the restriction of appearance of the complementizer in relative clauses is explained by the doubly-filled COMP filter, which disallows COMP (CP, in terms of Chomsky and Lasnik (1977)) to be occupied by more than one element. However, this does not prevent an EXC from including both a *wh*-element and a complementizer. Recall that Zanuttini and Portner (2003) use this constraint as evidence in favor of the existence of an additional CP layer that can host the *wh*-word. I leave for further research the explanation of this phenomenon.

On the other hand, it is relevant to mention that DPs modified by a *that*-clause and free relatives with an emphatic intonation are considered to be exclamatives by Portner and Zanuttini (2003) or Gutiérrez-Rexach (1999), even if their final denotation is a DP. Observe the following examples:

(131) a. Les coses que (*la Maria) menja la Maria!
'The things Maria eats!'

b. *Lu* alt que (*en Pau) és   en Pau!
the tall that is   the   Pau
'Pau is so tall!' (lit. 'The tall that Pau is!')

What is interesting from the preceding sentences is that they are DPs (see Gutiérrez-Rexach (1999) for an analysis *à la* Kayne (1994) of degree relatives like (131b)) but they

are not constituents of a clause, but rather they are independent constructions, thanks to intonation. Just like in EXCs, the subject cannot occur between the complementizer and the verb. In contrast, the complementizer is compulsory in the preceding examples and the relative clause must occur, whereas EXCs can be verbless.

(132)   a. # Les coses!
            'The things!'

        b. Quines coses!
            'What things!'

In chapter 5 I will consider again these facts in the context of embedded EXCs. In particular, I will compare embedded EXCs in Catalan and English and discuss whether embedded EXCs should be analyzed as EXCs after all.

Remarkably, the appearance of the complementizer is a property shared by some Romance languages and that is interpreted here as indicating that CP projects.[4] Interestingly, some Germanic languages do not allow the complementizer to surface. As a matter of fact, the C^0 position is supposed not to be filled, according to Postma (1998):

> WH in SpecCP without the accompanying instantiation of the complementizer (V2/P2) induces the exclamative reading.

Of course, he does not mean that whenever there is no lexicalization of C^0 we obtain an exclamative reading. What he claims is that an EXC occurs whenever there is not movement of V to C in languages like English. In the same line, EXCs in German do not involve subject-verb inversion or V2, which also happens in complement clauses (133a) and free relatives (133b). This, too, points in the direction of considering EXCs as involving a CP and, hence, an entire sentence.

(133)   a. Ich weiß, dass Berlin wieder Haupstadt ist.
            I   know that Berlin again   capital   is

---

[4]In French, for example, a productive way to build EXCs is by adding a complementizer to a declarative clause that contains a gradable adjective:

(1)   Que/comme Paul est grand!
      C^0 Paul is   tall
      'How tall Paul is!'

'I know that Berlin is the capital again.'

b. Sie bleibt, wie sie war
   she stays   how she was
   'She stays how she was.'

So far, a few arguments have been given that challenge the idea that EXCs are inter-rogatives or relatives. But what is most important is that they are *wh*-constructions whose *wh*-phrase is hosted in Spec,C as the presence of the complementizer proves. I shall interpret this fact as evidence in favor of considering EXCs *entire* clauses, even when only the *wh*-phrase surfaces. Typically, in these cases, the *wh*-phrase is interpreted as the predicate in a (possibly verbless) clause whose subject is salient in the context (134) or as the bare nominal of a light verb construction (135). [5]

(134)   a. Quin noi més alt!
            what boy more tall
            'What a tall boy!'

         b. Quin noi més alt, aquest d'aquí al   davant!
            what boy more tall this   of here to the front
            'What a tall boy, here in front of me!'

(135)   a. Quina barra!
            what   bar
            'You/He/she/They have a real brass neck.'

            (lit. 'What a bar!')

---

[5]I do not make any claims as to whether this is language specific or whether it should be true crosslin-guistically. I am aware that there are languages, such as Basque, where verbless EXCs can be introduced by demonstratives instead of *wh*-words. I leave this issue for future study.

(1)   a. Zer   polita!
          what beautiful
          'How beautiful!'

       b. Hau polita!
          this beautiful
          'How beautiful!'

       c. Zer   polita   zauden!
          what beautifull you.are.N
          'How beautiful you are!'

       d. *Hau polita   zauden!
          this   beautiful you.are.N

b. Quina barra que tens!
   what   bar   that have.you

   'You have a real brass neck.'

   (lit. 'What a bar you have!')

Crucially, I assume that the previous examples are all sentences and project CPs (and they actually have the same felicity conditions). This allows us to give a unified account of verbless and non-verbless EXCs.

3.1.3   CP, clause typing and illocutionary force

Zanuttini and Portner (2003) argue that EXCs are a clause type. And this is not about stating that they have to be considered separately from interrogatives, like Elliott (1974); Milner (1978); Grimshaw (1979); Radford (1982) – among others – had done in the past. They employ the notion of clause type as related to that of sentential force. In this section I will discuss whether EXCs should be considered a clause type and whether there is an exclamative sentential force.

Let us first begin with Cheng (1991)'s introduction to her theory of clause typing applied to interrogatives:

> I propose that syntactic *wh*-movement serves to "type" a sentence as interrogative
> (and more specifically, a *wh*-question). Languages which do not have syntactic
> *wh*-movement have another way to "type" clauses as interrogatives, namely, by
> the use of question particles. Furthermore, assuming the Principle of Economy of
> Derivation (Chomsky, 1989), I suggest that no language uses both ways to 'type'
> a *wh*-question.

Obviously, this condition, stated as it is, makes some incorrect predictions, since *wh*-movement does not equal obtaining a *wh*-interrogative. In many languages this movement can have the result of an EXC. Moreover, the *wh*-feature cannot be identified as a clause type marker, since there is no correlation between the languages that have *wh*-interrogative movement and those that have *wh*-exclamative movement. To be more precise, those languages that do not exhibit *wh*-interrogative movement do not exhibit *wh*-exclamative movement, but the entailment does not follow the other way around. In other words, there are *wh*-in situ languages that do not have *wh*-exclamatives at all (like Mandinka), languages that have optional

wh-in situ in matrix questions that do not allow *wh*-in situ exclamatives (like French) and languages that exhibit *wh*-movement but do not productively make use of *wh*-exclamatives (like English).

To elaborate a little bit on this previous claim, I will add some data from Mandinka, a *wh*-in situ Niger-Congo language (136) that does not employ *wh*-elements to produce EXCs. What it does is to build a simple declarative with a gradable adjective and to place a particle clause initially (which is the conjunction *but* in other contexts)(137).[6] The effect of this is to make it impossible for the clause to work as a declarative, in the sense that it conveys that the speaker holds an attitude towards what the sentence states. Consequently, for instance, a sentence with this particle cannot be used to answer a question about the degree to which some property holds.

(136)   Kewo-o   ko   muso-o   ye   mung ne   tuu?
        man-DET say woman-DET aux what FOC mash
        'What does the man say the woman mashed?'

(137)   a. Nfanli le   beteyaata
            Nfanli FOC good
            'Nfanli is good.'

        b. (Bari,) Nfanli le   beteyaata!
            (but)   Nfanli FOC good
            'How good Nfanli is!'

As for French, it is well known that *wh*-in situ is optional in matrix interrogatives. However, this does not parallel EXCs:

(138)   a. Tu as   vu   quel homme?
            you aux.you seen what man
            'What man have you seen?'

        b. *Tu as vu quel homme!

Finally, English prefers the use of the *so* and *such*-structures where Catalan would prefer the *how* and *what a*-structures; even if, admittedly, their distribution is not totally parallel, as

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[6]L. McNally points out to me that *but* has this effect in English, too. And X. Villalba highlights that the strategy of using a conjunction sentence initially is the one used in French, though in this case, the conjunction is the complementizer *que* ('that') or *comme* ('how'), which can also be treated as a complementizer in the exclamative context.

Zanuttini and Portner (2003) point out when they show that *wh*-exclamatives are not suitable answers, whereas *so*-constructions in English are (see chapter 5 for the specific contribution to discourse that *wh*-exclamatives do).

Besides this lack of covariation, it is difficult to pick out a single formal feature that EXCs share in every language and that can be identified with their sentential force. A lot of research needs to be done to find a syntactic property that all EXCs have in common and that identifies EXCs with respect to any other clause type. Maybe what we should do is pose the right questions: Why do many languages make use of *wh*-movement?, why do some languages exhibit a lexical C^0?, or why do some languages that exhibit subject-verb inversion in interrogatives fail to do so in EXCs? I assume for now that these are hints that show us that CP projects, but I do not intend to claim that EXCs are syntactically typed.

Regarding sentential force, I will not make the hypothesis that the semantics is mapped into the syntax, in the line of Zanuttini and Portner (2003). They establish a distinction between illocutionary force and sentential force, and they argue that what matters at the syntax-semantics interface is sentential force, though it is claimed not to be formally represented *per se* (contrary to Sadock (1974)). Contra Rizzi (1996); Ginzburg and Sag (2001) the authors deny that syntax encodes the properties that classify the clause into a certain clause type. Rather, they propose that the different types of clauses differ in their semantics and this is encoded in the syntax. Sentential force thus arises as a combination of syntax and semantics. In the case in question, they propose that the EXCs sentential force is called *widening*, which is the result of combining a *wh*-operator and a factive morpheme. In accordance with these authors, I will not claim that EXCs have their illocutionary force encoded. Clearly, *illocutionary force* is a term that belongs to pragmatics and refers to communicative intentions. Although it has been traditionally accepted that CP hosts the sentence's illocutionary force, I believe illocutionary issues have nothing to do with a blind derivation triggered by the need to check formal features (or value them and satisfy an edge feature). That is the main reason I will not follow Rizzi (1997)'s proposal of ForceP. But contra Zanuttini and Portner (2003); Portner and Zanuttini (2005b) I do not postulate that a specific force emerges from the combination of syntax and semantics, either. In the spirit of minimalism, I accept that CP hosts formal features (i.e., without a semantic flavor) so the phrases that harbor in there happen to have a particular pragmatic behavior.

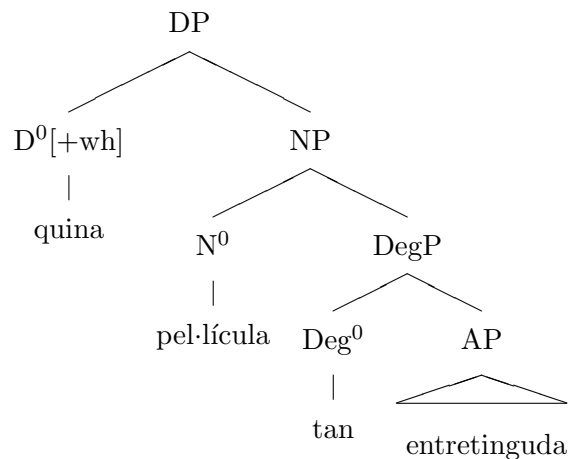## 3.2   The syntax of the *wh*-exclamative phrase

In this section I address the question of what the internal structure of the *wh*-phrase looks like, be it when the *wh*-phrase contains the degree operator, be it when the *wh*-phrase is the degree operator itself. Most importantly, I will claim that an exclamative *wh*-phrase must contain a degree phrase at the left periphery headed by *tan* ('so') or *més* ('more') and it must include a *wh*-feature. The two structures I will consider are the following:

(139)   Analysis for DP *wh*-movement

    a. Quina pel·lícula tan entretinguda!

       'What an entertaining movie!'

    b.

```
                        DP
                  _____|_____
                 |             |
             D⁰[+wh]          NP
                 |         ____|____
               quina      |         |
                         N⁰        DegP
                          |      ____|____
                      pel·lícula |         |
                               Deg⁰       AP
                                 |        /\
                                tan   entretinguda
```

(140)   Analysis for DegP *wh*-movement

    a. Que entretinguda!

       'How entertaining!'

    b.

```
                    DegP
               _____|_____
              |             |
          Deg⁰[+wh]        AP
              |            /\
             que      entretinguda
```
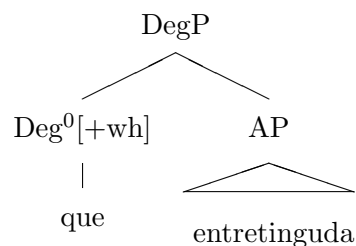
What is most remarkable is that both structures contain a DegP with the same structure: A degree operator heads DegP and it has as a complement a gradable AP.[7] Observe that in (139), the indefinite determiner includes [+wh] and the operator heads a DegP that contains

---

[7]It is interesting to realize that the same structure can account for other constructions including the degree heads *tan* and *més*, in which there is no *wh*-movement, but pending intonation:

tan, whereas in (140), the very DegP head includes [+wh]. I will assume that *que* ('how') is the degree operator *tan* with the *wh*-feature.

Furthermore, it is relevant to highlight that the DegP in (139) is the complement of N, so the relation between the two categories is one of modification. This argues against other proposals (Bennis et al., 1998) that claim that the DP in an EXC is a small clause and it involves predication, just like other predicate inversion constructions. This might be suitable for Dutch, but I will show it is not for Catalan.

3.2.1 The small clause approach

In the following two subsections I will discuss previous proposals regarding the relation between DegP and the DP in an EXC. More specifically, I will touch upon a trend that considers these DPs as involving predication. First, I will spell out the arguments of such a proposal and, then, I will show why this is not an option for Catalan.

For some time now, a symmetry has been established between clauses and nominals with regard to predication. Being more precise, it has been claimed that DPs can include a predication relation and that has been translated as a small clause structure inside the DP. The kind of examples that led Kayne (1994) to propose such an idea was the structure *N of a N* (as in *a hell of a problem*). Later, it has been taken up again by a number of authors,

---

(1)   He   vist una pel·lícula tan/més entretinguda!
       AUX.I seen a   movie   so/more entertaining
       'I've seen such an entertaining movie!'

In this situation, the derivation would not include a [+wh] feature, but another formal feature – e.g., [+foc] – that the sensory-motor interface could interpret as involving an emphatic accentual pattern. For instance:

(2)
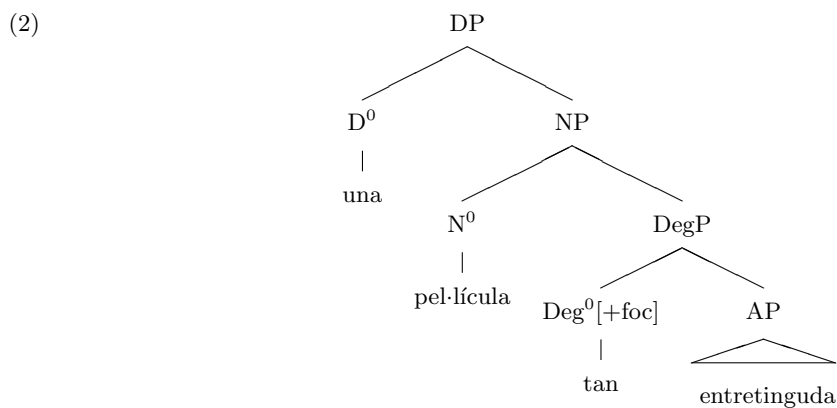
among them Bennis et al. (1998), who examine data from the Dutch *N van een N* construction and expand this small clause structure (with slight variations) to other constructions, like the exclamative *wat een* ('what a'). Let us see how they end up claiming that *wat een* involves predication inside the DP and how this can be applied to EXCs in Catalan.

The main argument they use comes from predicate inversion. The thing is in the N_1 *van een N_2* construction, N_1 is the predicate and N_2 is the subject.

(141)   Example (2) from Bennis et al. (1998)
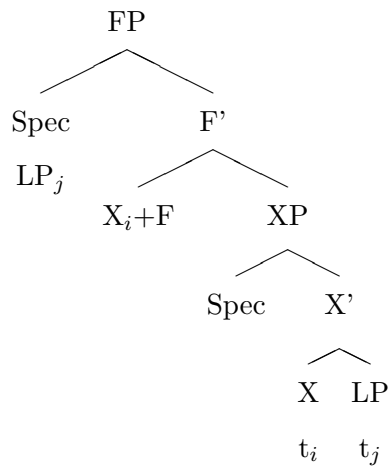
        a. Een beer van een vent
           a   bear of   a   man

        b. Een vent als een beer
           a   man like a   bear

Their hypothesis is that the same structure underlies (141a) and (141b). And they postulate that what goes on in (141a) is a movement of the predicate to the subject position. To represent this, they borrow the functional projection XP first proposed by Stowell (1981), which is the representation of the small clause (henceforth SC).

(142)   a. John is the best candidate

        b. The best candidate is John

        c. $[_{IP}$ ... be $[_{XP}$ John X $[_{Pred}$ the best candidate]]]

According to Stowell (1981), the two examples above have the structure in (142c), where *the best candidate* is the predicate that will move and predicate inversion will obtain. Based on this configuration, Bennis et al. (1998) make another proposal. In particular, they need to add an additional functional projection, FP, so a potential problem of Relativized Minimality (Rizzi, 1990) does not arise (note that the predicate movement crosses an intervening A-position, the position of the SC subject, which potentially governs the predicate's generation position). To overcome this obstacle, they stipulate that X (the SC head) moves to a higher position (F^0) and expands its domain. This way, the position that the predicate skips and the first position that it can land in are equidistant from its landing site (Chomsky, 1993) and this movement does not incur a Relativized Minimality violation.

(143)

```
                              FP
                         ╱         ╲
                      Spec          F'
                      LP_j       ╱      ╲
                              X_i+F       XP
                                      ╱      ╲
                                   Spec       X'
                                           ╱    ╲
                                          X      LP
                                          t_i    t_j
```

Now, the authors raise the question as for what are X and F in the *N van een N* construction. They argue that X hosts the so-called *spurious article een* and F – a position that is only necessary if predicate inversion occurs – is where the copula rests when it is overtly realized. In the case in question, it is home for the *van* part of the construction.

There is an interesting syntactic parallelism with these constructions and EXCs in Dutch:

(144)   [Wat een boeken] heb jij   gelezen?
        what a   books   have you read

        'Boy, did you read a lot/kind of books!'

(Bennis et al., 1998, 105)

Despite the question marker and the non-exclamative English translation (see McCawley (1973); Huddleston (1993)), the authors claim that (144) illustrates a *wat*-exclamative construction. Note that *wat* occurs in other contexts with different functions:

(145)   Different functions of *wat* in Dutch. From (Bennis et al., 1998, ex. 34)

        a. Hij heeft **wat** gegeten [indefinite]
            he has   what eaten

            'He ate something.'

        b. **Wat** heeft hij gegeten? [interrogative]
            what has   he eaten

            'What did he eat?'

        c. **Wat** heeft hij gehuild (zeg)! [exclamative]
            what has   he cried   dprt
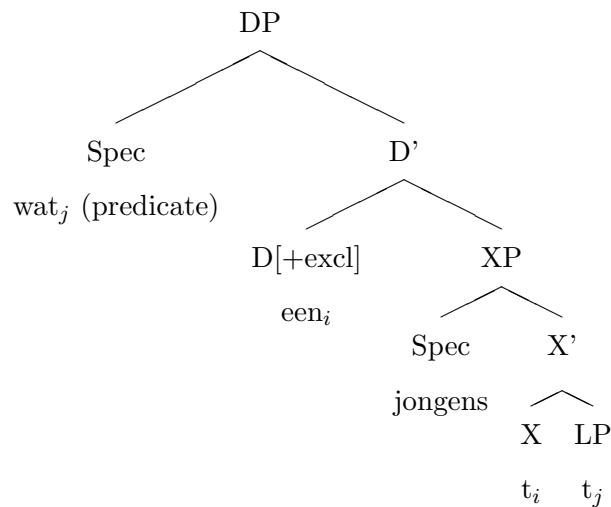
            'Boy, did he cry!'

What interests us is the way the authors analyze the *wat en* constructions, which can only introduce EXCs, and which are, at least formally, reminiscent of the *what a* constructions in English.

(146)   From (Bennis et al., 1998, 106)
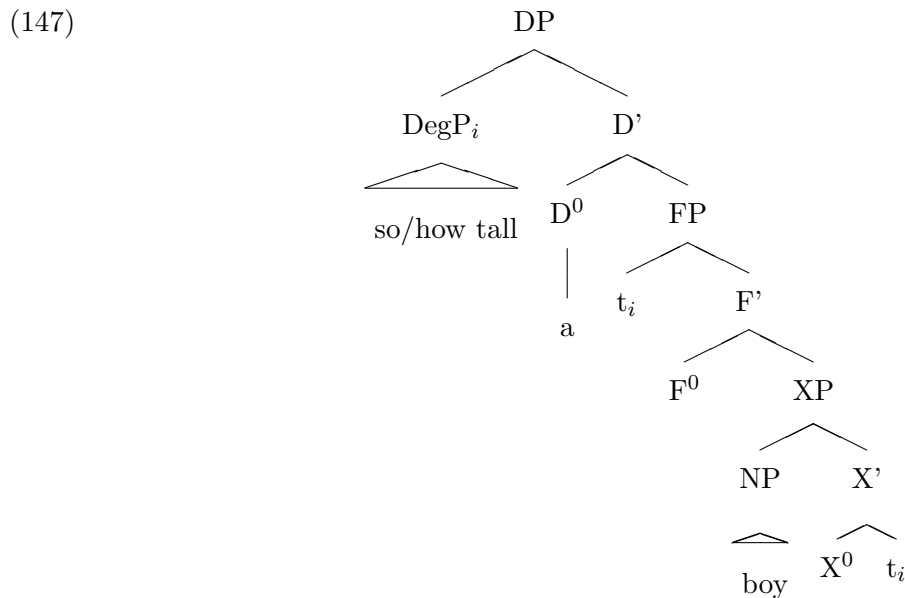
    a. Wat een jongen(s)

    b. $[_{DP}$ wat$_j$ $[_{D'}$ $[_D$ $[_X$ een$]_i]$ $[_{XP}$ jongen(s) $[_{X'}$ t$_i$ t$_j]]]]]$

    c.

Let us comment on the details. To begin with, as in the *N van een N* construction, the authors assume there is predicate inversion and, hence, the SC analysis. And by *predicate inversion* here they mean the *wat* is the predicate of the structure. Furthermore, note that the *wat*-exclamative construction is construed as a DP, not as a CP. Precisely, Postma (1998) argues that, whereas in other languages, such as English or French, what determines an EXC is the structure of the sentence, in Dutch, what matters is the internal structure of the DP. And the authors claim that *wat* receives its exclamative meaning from the projection it lands in. So the exclamative construction has as a highest functional projection (here a DP) a [+excl] D head, which marks the type of illocution. Then, D triggers movement of *wat* to its specifier, so it ends up on its left-hand side. Interestingly, *een* in this construction originates as the head of the SC (X, in the preceding tree) and *wat* is the predicate. Contrary to what happens in the *N van een N* examples, the spurious article is introduced here to move to D and, thus, lexicalize the determiner, which makes it possible for the *wat* to land in the Spec,D. Clearly, this structure is not a mirror of the *N van een N* construction, mainly, because there is no need for an F (the *van*).

A similar reasoning leads Kayne (2005) to propose an analysis of degree constructions inside DPs as involving a SC structure. In particular, he works with constructions such as *how/so tall a boy*:

(147)

```
                        DP
                 ┌──────┴──────┐
              DegP_i           D'
             ┌───┴───┐      ┌───┴───┐
          so/how tall D⁰         FP
                      │       ┌───┴───┐
                      a      t_i      F'
                            ┌────┴────┐
                           F⁰        XP
                                  ┌───┴───┐
                                 NP       X'
                                  │     ┌──┴──┐
                                 boy   X⁰    t_i
```

Even though in both analyses it is assumed that *wh*-phrases in EXCs involve a SC approach, there are meaningful differences. To begin with, Kayne (2005) makes use of the FP projection, and its specifier is the first landing site of DegP (which, as a matter of fact, moves twice and finally ends up as the specifier of D). In both analyses, D is treated as the location of the article (the spurious article in Dutch), but in Kayne's analysis D is its base-generation site, whereas in Bennis et al. (1998)'s proposal, D [+excl] is its landing site, because it is base-generated in X^0. Finally, observe that D is not specified as [+excl], because this construction in English does not necessarily result in an exclamative clause (cf. *How tall a basketball player is Pau?*).

3.2.2   Modification and predication

The goal of the following paragraphs is to show that the SC analysis is not suitable to account for the relation between N and DegP inside an exclamative *wh*-phrase in Catalan. As a matter of fact, instead of considering DegP the predicate of the subject represented by N, I will argue that DegP modifies N and I will establish a parallelism with similar constructions to prove it.

However, I will indeed make use of the SC approach to analyze the following constructions,

in which the *wh*-phrase and N are different constituents:

(148)   a. Que entretinguda que va   ser   la pel·lícula!
           how entertaining that AUX.it to.be the movie

           'How entertaining the movie was!'

   b.
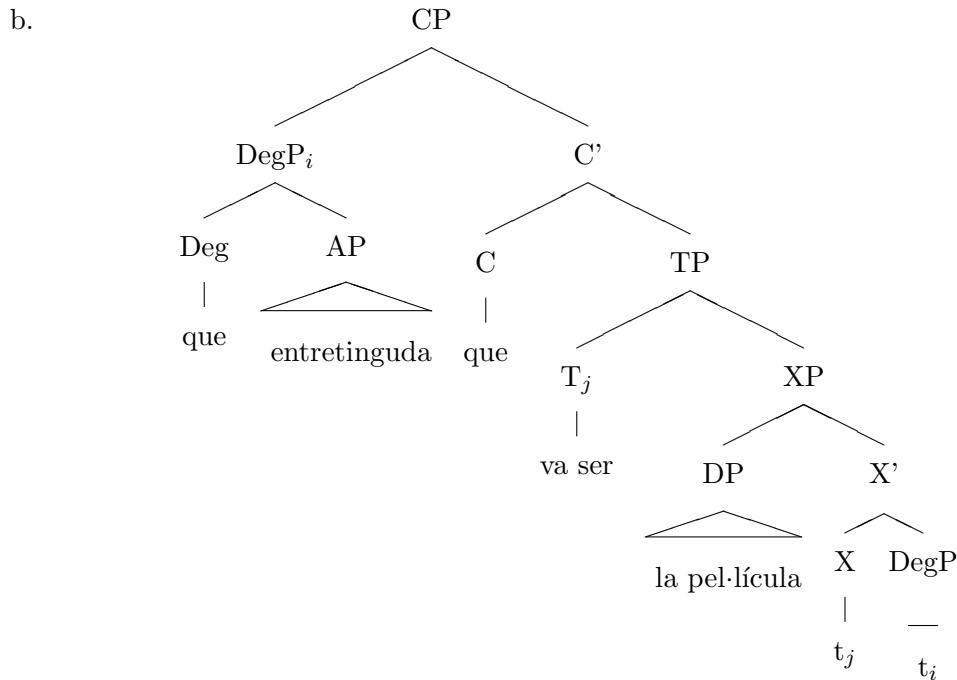
Here, the copula is taken to be the head of a functional category, X, which preserves antisymmetry (Kayne, 1994). The subject of the clause is in its specifier and the predicate (the degree *wh*-phrase) has moved to the left periphery. Also, the copula is assumed to move to T to check its ϕ features. Admittedly, this structure includes a SC analysis but differs from both Bennis et al. (1998) and Kayne (2005)'s approaches. Under their account, the final projection is a DP that can merge with V. Here, on the other hand, I use the SC account because there is a copular verb, which establishes a predication relation between two constituents that do not surface as an apparent DP. The subject is *la pel·lícula* and the predicate is *que entretinguda*.

A similar analysis could be adopted for the following EXCs, which do not include a main verb. These are cases where the subject is a DP, a *that*-clause, an entity that is pointed at or an event which is salient in the context of utterance, and there is no inflected main verb.

(149)   Quina meravella, aquesta ciutat!
        what wonder   this   city

        '(lit.) What a wonder, this city!'

(150)   a.   Que bé   que hagis   vingut!
             how good that aux.SUBJ.you come

             '(lit.) How good that you have come!'

        b.   Quina alegria tan gran que hàgiu   sobreviscut!
             what joy   so big   that aux.SUBJ.you.PL survived

             'What a big joy that you have survived!'

The previous cases do involve predication, because there is no other predicate in the
sentence than the *wh*-phrase, but realize that the predication relation it is not established
between DegP and the indefinite NP.

The first argument against the claim that *wh*-phrases in EXCs in Catalan should contain
a SC is that they do not involve predicate inversion in the sense of Bennis et al. (1998),
which was the main reason to support the SC account. Recall that these authors considered
predicate inversion as an instance of the predicate moving over the subject just as occurred
in copular sentences, but with absence of the copular verb. However, in a *wh*-exclamative
phrase like the following, no such thing seems to be happening:

(151)   a.   Quins   estudiants tan atents!
             what.PL students   so attentive

             'What attentive students!'

        b.   Els   estudiants estan   atents
             the.PL students   are.they attentive

             'The students are attentive.'

Given the examples above, the predicate should be DegP *tan atents* and the subject, *uns
estudiants*. As can be seen from the comparison between (151a) and (151b), the word order in
an EXC parallels the word order in a copular construction, so there is no predicate inversion.
However, recall that what Bennis et al. (1998) fix as the predicate is just *wat*. Apart from the
surface resemblance between *wat een* and *what a*, and according to the translation, it might
be the case that this *wh*-word is a quantifier that operates on amounts (not degrees), so it is
not comparable to *quin* ('what') but *quant* ('how many'). Certainly, assuming that *quin* is a
predicate does not make much sense in view of the data (what states as a predicate is DegP
rather than the indefinite *wh*-determiner).

Actually, examples of the *wat een* construction that include an adjective are analyzed in a
parallel way except for the fact that the gradable adjective is merged with N. (From (Corver

and van Koppen, 2006, 11).)

(152) Wat een   grote vis!
       what SPURIUS.EEN big   fish

The differences between Dutch and Catalan are significant. As a matter of fact, in Catalan there is not even a parallelism between EXCs and *N of an N* constructions. In Catalan, unlike Dutch and English, the first N can be a definite or an indefinite N:

(153) a. El pesat   del   meu veí
           the tedious of.the my   neighbor

       b. Un rotllo de programa
           a   pain of show

(154) a. El meu veí   és un pesat
           the my neighbor is a   tedious

       b. Un programa que és un rotllo
           a   show   that is a   pain

The examples above show that in (153) there is an actual predicate inversion, because the canonical subject-predicate order is found in copular constructions like (154). Notice that an EXC can be built upon the predicate inversion examples. For instance:

(155) Quin rotllo de programa!
       what pain   of show
       '(lit.) What a pain of a show!'

This and not another could be the case to be analyzed as a SC construction, independently of the fact that it is an EXC, but I will not stop to examine the details (see Bartra and Villalba (2005) for a proposal).

Here is some independent evidence to analyze N and DegP as an NP instead of a SC. The sentences in (156) seem to mean the same as their counterparts in (157), which obviously involve predication, because the copular verb is overt.

(156) Examples from (Brucart and Rigau, 2002, 1558)

       a. Ha   estat un partit *(excepcional)
           aux.it been a   game exceptional
           'It has been an exceptional game.'

       b. Fa   un temps   *(xafogós)
           does a   weather damp
           'It's a damp weather.'

    c. Portes   unes mans *(que fan   fàstic   / molt brutes)
       wear.you a.pl hands that do.they disgust / very dirty

       'These are disgusting hands / very dirty hands.'

(157) a. El partit ha   estat excepcional
       the game aux.it been exceptional

       'The game has been exceptional.'

    b. El temps   és xafogós
       the weather is damp

       'The weather is dump.'

    c. Portes   les   mans que fan   fàstic   / molt brutes
       wear.you the.pl hands that do.they disgust / very dirty

       'Your hands are disgusting / very dirty.'

In (156) we see indefinite NPs that need to include an adjective that expresses a quality of the individual in order to satisfy the predicate that select them. Interestingly, the only way to make them acceptable without the adjective is by means of a pending intonation, so DegP is taken for granted, although unpronounced. Brucart and Rigau (2002) highlight that what (156) and (157) have in common is the compulsory presence of the AP. That is why we could presume that the former are cases of predication, too. In effect, this would make sense because getting rid of the AP would mean getting rid of the secondary predication established with the N in the indefinite NP. But the authors point out that there are syntactic tests that show the opposite (that the APs are modifiers, after all) based on the fact that N and AP in (157) are two different constituents. A proof of this is the possibility to pronominalize (158a) and to switch the order of occurrence (158b).

(158) Examples from (Brucart and Rigau, 2002, 1559)

    a. Les portes   que fan   fàstic   / molt brutes.
       CL   wear.you that do.they disgust / very dirty

       '(lit.) You wear them that disgust / very dirty.'

    b. Portes   molt brutes les   mans.
       wear.you very dirty   the.PL hands

       '(lit.) You wear very dirty your hands.'

However, none of these options are available for the sentences in (156), which suggests that the AP lies within the indefinite NP:

(159) a. *En portes   unes que fan   fàstic/molt brutes.
           CL   wear.you a.PL that do.they disgust   /   very dirty

       b. *Portes   molt brutes unes mans.
           wear.you very dirty   a.PL hands

What interests us is that these constructions involving APs that modify indefinite Ns have an exclamative counterpart, which suggests that indefinite Ns and DegPs in EXCs also involve modification.

(160) a. Quin temps tan xafogós que fa!

       b. Quines mans tan brutes que portes!

Moreover, secondary predications have constraints that *wh*-phrases in EXCs do not exhibit. In particular, neither names nor definite Ns can occupy the position of the N to which the adjective applies, which would not be a standard assumption for a regular subject.

(161) a. Considero en Pau molt alt
           consider.I the Pau very tall

           'I consider Pau very tall'

       b. *Quin Pau tan alt!
           what Pau so   tall

In (161a) we see a clear example of a secondary predication, where *considero* selects for a SC and the subject is a N that is a name. By contrast, this option does not exist in (161b). Apart from the definiteness condition, secondary predications have another condition, namely that the predicate must be stage level.

(162) a. Julia vive (*modesta) en París (modestamente)
           Julia lives modest   in Paris modestly

           'Julia lives (*modest) in Paris (modestly).'

           Spanish example, from Hernanz (1996)

       b. Quina noia tan modesta!
           what girl so   modest

           'What a modest girl!'

The previous example shows that this sort of restriction does not arise in EXCs. The only constraint on the type of adjective that can appear in EXCs is that it must be gradable.

To recap, I have shown that it does not seem appropriate to characterize DegP within the *wh*-phrase in Catalan EXCs as being a predicate that undergoes predicate inversion. Rather,

it is a modifier of an indefinite NP and, hence, a sc account would be inappropriate. Also, it seems reasonable that draw a distinction between the EXCs that are analyzed in this thesis and the data that Bennis et al. (1998) cover.

3.2.3 Inventory of *wh*-words

In the following paragraphs I give a justification as for why there is not a one-to-one correspondence between the set of the interrogative *wh*-words and the set exclamative *wh*-words.

I claim that every EXC involves the occurrence of a DegP (either overt or recoverable from context). Crucially, only *wh*-words that are degree operators themselves ((163)) and *wh*-phrases that allow for the presence of a DegP as a complement of the N that D selects for are available in exclamative environments ((164)).

(163) The *wh*-word and degree operator *que* ('how')

    a. *Que* + AP + *que*+ TP

    b. Que car   que és aquest vestit!
       how expensive that is this   dress
       'How expensive this dress is!'

    c.
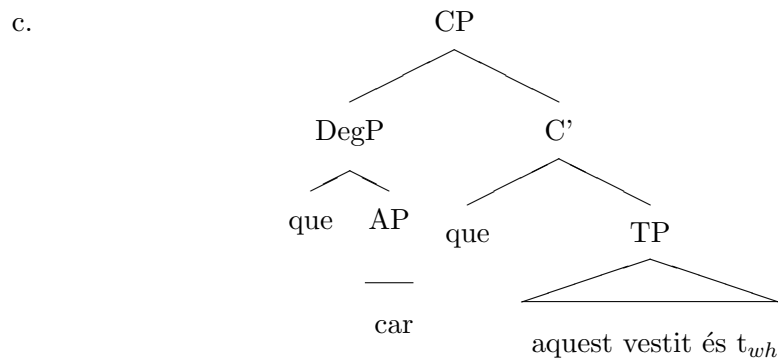
(164) The *wh*-phrase headed by *quin* ('what') which contains a DegP headed by *tan* ('so') or *més* ('more')

    a. *Quin-* + N + DegP +*que*+ TP

    b. Quin vestit més car   que m'he   comprat!
       what dress more expensive that I.dat aux.I bought
       'What an expensive dress I bought!'

c.

```
                              CP
                       ┌──────┴──────┐
                      DP            C'
                  ┌────┴────┐    ┌────┴────┐
                quin       NP   que       TP
                       ┌────┴────┐      ╱────────╲
                     vestit    DegP    m'he comprat t_wh
                            ┌───┴───┐
                           tan     AP
                                    │
                                   ───
                                   car
```
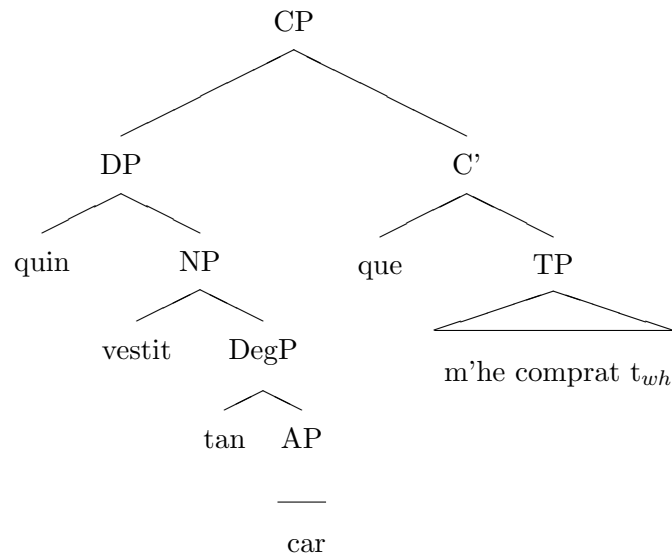
There is still another *wh*-phrase that can occur in an EXC, namely one introduced by *quant-* ('how much/many'). It does not take DegP, but it quantifies over the amount of individuals denoted by N.
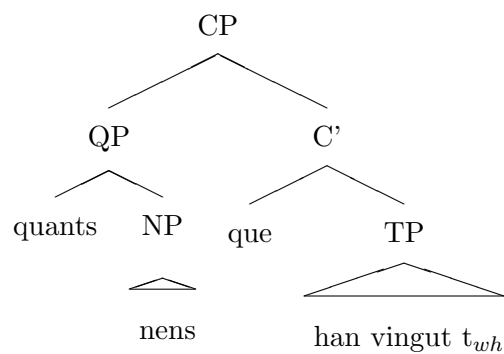
(165)   The *wh*-phrase headed by *quant-* ('how much/many)

   a.   *Quant-*+ N + *que*+ TP

   b.   Quants   nens que han vingut!
        how many kids that aux come
        'So many kids have come!' (lit. 'How many kids have come!')

   c.

```
                              CP
                       ┌──────┴──────┐
                      QP            C'
                  ┌────┴────┐    ┌────┴────┐
                quants     NP   que       TP
                            ╱╲        ╱────────╲
                          nens      han vingut t_wh
```
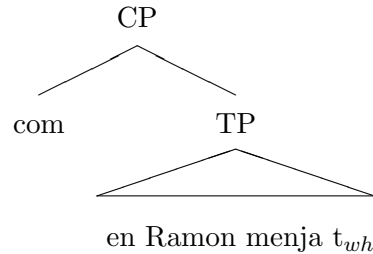
And there are two more *wh*-words that can occur in EXC (though they are out of the scope of this thesis), namely, *com* and *quant*. They are not only *wh*-words but also degree operators or quantifiers, so the two requirements are met.

(166)   The *wh*-word *com* ('how')

a. Com menja en Ramon!
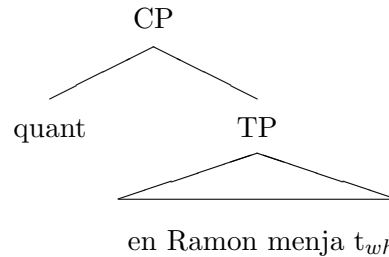
'(lit.) How Ramon eats!/ How much Ramon eats!'

b.

```
              CP
            /    \
          com     TP
                 /  \
                /    \
           en Ramon menja t_wh
```

(167)   The *wh*-word *quant* ('how much/many')

a. Quant menja en Ramon!

'(lit.) How much Ramon eats!'

b.

```
              CP
            /    \
         quant    TP
                 /  \
                /    \
           en Ramon menja t_wh
```

However, the rest of *wh*-elements that occur in interrogatives (*qui* – 'who' –, *què* – 'what'–, *on* – 'where' –, *quan* – 'when' – and *per què* – 'why' –) are not capable of introducing an EXC. Crucially, they introduce *wh*-clauses, but they are not degree quantifiers or cannot contain one in their restriction.

Interestingly, though, there is an additional *wh*-context in which an exclamative interpretation is not possible: Partitive *quin*-constructions.

(168)   a. *Quin d'aquests llibres tan bons que has   llegit!
           what of these   books so   good that aux.you read
        b. *Which wonderful books you have read!

        c. *Quin d'aquests llibres fantàstics   que has   llegit!
           what of these   books fantastic.pl that aux.you read

Putting aside the intonational pattern and the presence of *que*, the previous sentences could be understood as interrogatives (169a), whereas their non-partitive counterparts are unacceptable if they do not have an echo reading in which the speaker borrows the addressee's own words (169b).

(169)   a. Quin d'aquests llibres tan   bons   has llegit?
           what of these   so   good AUX.you read

'Which of these good books have you read?'

b. *Quins llibres tan bons has   llegit?
   what   books so   good AUX.you read

This contrast also shows in declarative sentences, where no *wh*-movement has taken place, which suggests that the two sentences might have slightly different structures regardless of whether the sentence is an interrogative or a declarative.
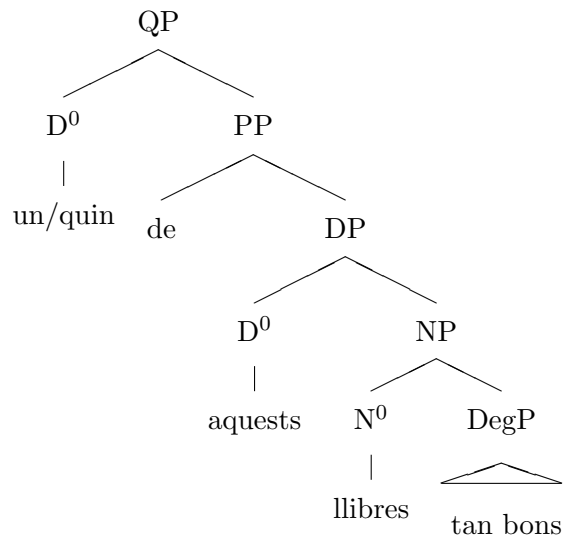
(170)   a. He   llegit un d'aquests llibres tan bons
            AUX.I read a   of these   books so   good

        '(lit.) I have read one of these such good books.'

        b. *He   llegit uns llibres tan bons
             AUX.I read a.PL books so   good

From these data we can conclude that, first, partitive constructions might involve not just an indefinite determiner, but a numeral quantifier (as a matter of fact, the translation of *quin d'aquests llibres* in English is 'which **one** of these books', and *a* and *one* are both translated as *un* in Catalan). And, second, *tan* in example (169a) is the head of the DegP *tan bons* ('so good'), which is the complement of the N *books*, this NP is the complement of D, and D itself is the complement of a P. However, in the case of EXCs, the indefinite *quin* takes as a complement the NP *llibres tan bons*. That is, the syntactic structure is different (in the partitive construction, DegP is embedded into a DP headed by a demonstrative) and the whole phrase is headed by a numeral rather than an indefinite quantifier. In the following chapters, more about the semantics of DP and DegP will be said.[8]
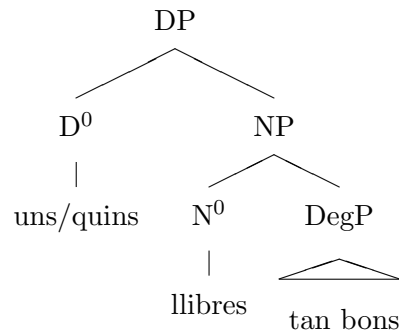
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[8]I have named the projection headed by *de* ('of') *PP* for ease of presentation, but this apparent preposition has also been analyzed as a functional category. See Martí-Girbau (2005) for relevant discussion.
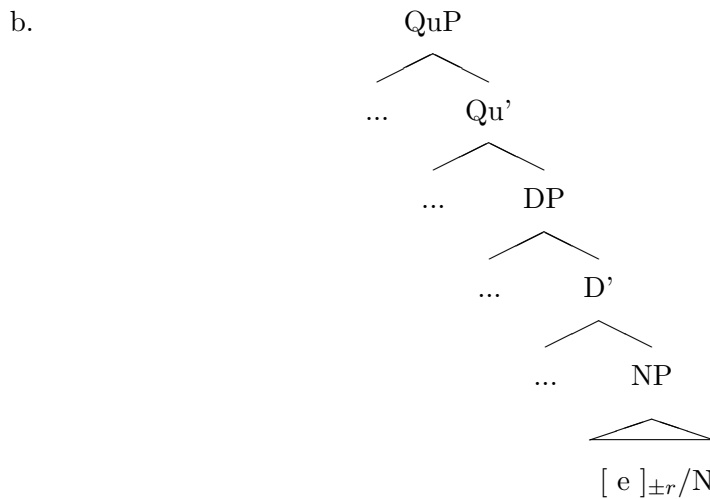
(171)   a.

```
                              QP
                         ┌─────┴─────┐
                        D⁰           PP
                         │       ┌────┴────┐
                      un/quin   de        DP
                                     ┌─────┴─────┐
                                    D⁰           NP
                                     │       ┌────┴────┐
                                  aquests   N⁰        DegP
                                             │        ╱‾‾‾╲
                                          llibres    tan bons
```

   b.

```
                         DP
                    ┌─────┴─────┐
                   D⁰           NP
                    │       ┌────┴────┐
                uns/quins   N⁰        DegP
                            │        ╱‾‾‾╲
                         llibres    tan bons
```

A few works have tried to determine which ones are suitable for EXCs and why. Ambar (2003) proposes that *wh*-phrases have an internal structure that has an effect on the syntax (it is responsible of the presence or absence of subject-verb inversion, for instance). The inventory of *wh*-words is based on the *wh*-element *que* and then they are characterized according to a few semantic features such as [+time] (*when*) or [+place] (*where*).

(172)   Fine structure for *wh*-phrases. From (Ambar, 2003, 214-215)

    a.   i. [Que [N]]

         ii. [Que [e]$_{\pm r}$]

            i. que [e]$_{-r}$ → que (what)

            ii. que [e]$_{+human}$ → quem (who)

                que [e]$_{+time}$ → quando (when)

                que [e]$_{+space}$ → onde (where)

                que [e]$_{+specific}$ → o que ('the' what)

b.

```
                        QuP
                       ╱  ╲
                    ...      Qu'
                            ╱  ╲
                         ...      DP
                                 ╱  ╲
                              ...      D'
                                      ╱  ╲
                                   ...      NP
                                           ╱‾╲
                                        [ e ]₊ᵣ/N
```

[e]$_{\pm r}$/N

What we are interested in here is the syntactic analysis she gives for *o que* ('the what'). It is *que* [e]$_{+specific}$, where *que* is equivalent to *quin* in (139), [e] stands for the empty category that N would occupy and [+specific] restricts the domain of reference. In other words, [e] in *o que* is not unrestricted; it refers to a specific item (notice that *o* is a determiner). Apparently, in Portuguese we can have interrogatives and EXCs with *o que*. Subject-verb inversion is optional in interrogatives, though it has some interpretive effects (lack of inversion triggers a lack of a full-blown interrogative reading, according to Ambar (2003)). Notice that in these examples the only difference between interrogatives and EXCs is intonation.

(173)   a. O   que   o   Pedro disse?
           the what the Peter said

        b. O   que   o   Pedro disse!
           the what the Peter said

Since instead of a N, *o que*'s restriction is an empty category [e], this *wh*-phrase is incompatible with overt adjectival elements:

(174)   a. Que livro (bom/mau/interessante...) o   João leu!
           what book (nice/bad/interesting...)   the John read
           'What a nice/bad/interesting book John read!'

        b. *O que   (bom/mau/interessante...) o   João leu!
           the what (nice/bad/interesting...)   the John read

The author maintains that these are nevertheless EXCs, because the speaker knows what the *wh*-bare phrase refers to and this involves an evaluation. This is precisely what she considers to differentiate interrogatives and EXCs, namely that the speaker knows the value

of the *wh*-variable and tells the hearer that this referent is of a certain type. That is why she justifies the existence of an empty adjectival slot even in these cases where no overt AP can appear. The reason it is banned in the *o que* examples needs to be examined in the internal structure of the *wh*-phrase, something that the author does not pursue in this article.

In the same line of thought, Zanuttini and Portner (2003) justify the different behavior of *wh*-elements in EXCs by resorting to their internal structure. Specifically, these authors draw a distinction between *E-only* and *non E-only wh*-phrases. The former ones occur only in EXCs, whereas the latter ones can be part of interrogatives, too. *Wh*-phrases in EXCs purportedly contain a *wh*-morpheme, an *E-only* morpheme and they can include a specification of measure and a specification of sortal, as is illustrated in the following examples.

(175)   a. How very   many   books
            WH E-ONLY MEASURE SORTAL

        b. Che t+anti   libri
            WH E-ONLY+MEASURE SORTAL

Interestingly, the *E-only* morpheme can be an empty category (*very* may not occur), and this triggers ambiguity between an interrogative (176b) and an exclamative (176a) word:

(176)   a. Che ε   libri   (che ha comprato!)
            WH E-ONLY SORTAL that has bought

        b. Che libri
            WH SORTAL

On the other hand, there are *wh*-words that cannot include this *E-only* morpheme, like *chi* ('who') and *cosa* ('what'); these *wh*-words are already complex words and the morpheme cannot fit in it. That is how the authors explain why they cannot be *E-only wh*-words, but this does not prevent these words to introduce EXCs in Italian (177a) or embedded EXCs in English (177b).

(177)   a. Chi inviterebbe per sembrare importante!

            'The people he would invite to seem important!'

        b. It's amazing who she saw.

It is remarkable that they consider (177a) to be an EXC, even if its English counterpart is not possible, and that they do not explain why a *who*-clause can be an embedded EXC. In the preceding chapter it has been suggested that a sentence like (177a) might actually not be an

EXC, but rather a type of interrogative. This is straightforward under my account, since there are no *non E-only wh*-phrases: The *wh*-words that are not degree operators themselves or that cannot include a DegP cannot introduce EXCs. This is a simple way to explain why *who* in English introduces interrogatives and not EXCs, which surfaces by the impossible subject-verb inversion (**Who she saw!*). In Italian, like in Catalan, both interrogatives and EXCs exhibit inversion. That is why (177a), with an emphatic intonation, can be mistaken for an EXC.

I am assuming a model in which the specific features brought up by Ambar (2003) and Zanuttini and Portner (2003) are not relevant. An EXC needs to include a degree operator, and this only happens in two cases: Either it can be included inside a DP as the DegP that modifies N or the *wh*-word and the head of DegP are the same item. That is, there is no need to postulate that there is an *E-only* morpheme. Furthermore, there are *wh*-clauses that are not used as questions, which are proffered with an emphatic intonation, that my analysis does not include in the set of exclamative clauses.

3.3   A degree construction

In the previous sections I have described in what way EXCs resemble *wh*-interrogatives and relatives. In this section I intend to show that many aspects of their behavior can be explained under the view that EXCs are a kind of degree construction. In particular, I claim that a DegP is compulsory in any EXC, although it is not spelled out. In that case, it is recovered from the context of utterance. For example, (178a) may be equivalent to (178b) or (178c) depending on the situation, but there is always a gradable predicate whose degree variable is bound by a degree operator.

(178)   a. Quin vestit!
             'What a dress!'

         b. Quin vestit tan bonic!
             'What a nice dress!'

         c. Quin vestit tan car!
             'What an expensive dress!'

What I want to show is that the DegP in EXCs resembles degree phrases in other degree constructions that involve the same degree operators (*tan* and *més*), like result clause constructions ((179a)) and comparatives ((179b)). However, unlike them, EXCs do not include a degree clause, and this brings them closer to absolute degree constructions ((179c)).
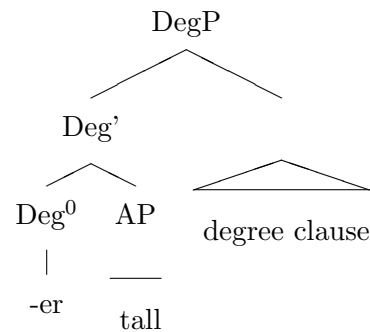
(179)   a. En Pau és **tan** alt [que arriba al sostre].

    'Pau is so tall that he reaches the ceiling.'

    b. Aquesta història és **més** vella [que l'anar a peu].

    '(lit.) This story is older than going on food.'

    c. Aquesta història és vella / En Pau és alt.

    'Pau is tall / This story is old.'

The structure I assume, following Abney (1987); Larson (1988); Corver (1990, 1993); Kennedy (1999) and Kennedy (2002), is one that is called *the common alternative* by Bhatt and Pancheva (2004) and in which Deg is a functional category – like D and v – that selects for a lexical category, AP. In the case at hand, DegP is headed by two possible degree operators: *tan* and *més*, or their *wh*-counterpart, *que*. Though this assumption is not without problems (see Bhatt and Pancheva (2004) for a comment on what they call *the classical view* and the *common alternative*[9] and a new bold proposal based on countercyclic merger of the sentential complement where the degree operator takes scope), it fits perfectly the semantics I propose in chapter 4 and it is syntactically elegant.[10]
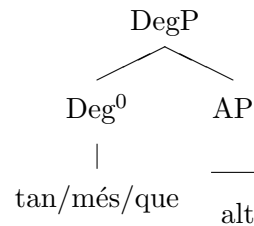
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[9]In this paper, the authors make clear that the two employed proposals contain important semantic and syntactic pitfalls. For instance, the supporters of the classical view (Chomsky, 1965; Selkirk, 1970; Bresnan, 1973; Heim, 2001) claim that the degree operator selects for the degree clause (that is why there is a correspondence between *more...than* and *as...as*). But the surface word order *more + than* or *as + as* is not attested, and there is no easy way to account for obligatory extraposition of the *than/as* phrase. On the other hand, the supporters of the common alternative (Abney (1987), etc.) do explain the surface word order and also the fact that sometimes the degree operator is morphologically bound to the adjective, but encounter other obstacles. For example, the degree operator and the degree clause do not set up a constituent on their own, which implies that they cannot take scope together separate from the AP, and this is actually attested.

[10]I leave aside several proposals devised to account for the facts of Germanic languages like Dutch. Catalan does not have dummies like *much* or proforms like *so* – which are in the basis for the bipartition between Deg^0 and Q^0 in Corver (1997)'s analysis. Moreover, the criteria that Neeleman et al. (2004) employ to establish a difference between Class 1 and Class 2 degree words – the phrases they select, internal structure, requirement on the type of adjective, position with respect to AP, topicalization, and blocking on topicalization of the AP

(180)   a.

```
                              DegP
                            /      \
                        Deg'        \
                       /    \        \
                    Deg⁰    AP     degree clause
                     |      __
                    -er    tall
```

b.

```
                              DegP
                            /      \
                        Deg⁰        AP
                         |          __
                    tan/més/que    alt
```

Above ((180a)) is the *common alternative* I base my analysis on ((180b)). Characteristically, where the degree clause lies will be empty in EXCs, just like it is in absolute constructions (where the standard degree that feeds the null degree morpheme is taken from context and it is not syntactically realized). I want to show how the basic facts of EXCs can be captured by the basic tree in (180b).

(181)   a. Que extremadament / poc entretinguda!
            How extremely   / little entertaining
            '(lit.) How extremely/little entertaining!'

b.

```
                              DegP
                          /          \
                      Deg⁰            AP
                       |            /    \
                  tan/més/que     Adv     AP
                                   |      __
                          extremadament/poc  entretinguda
```
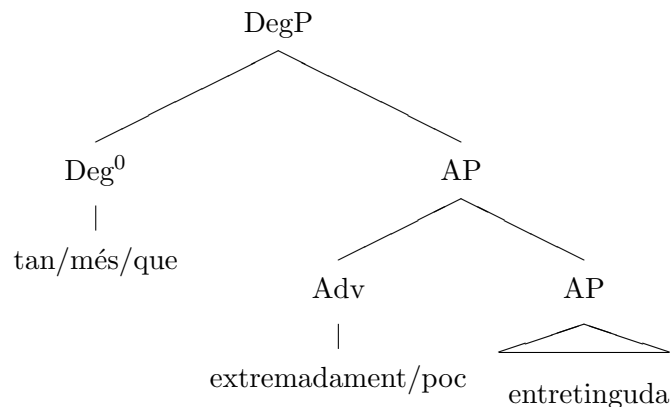
This analysis is compatible with the syntactic properties that define EXCs and which are depicted in what follows. To begin with, the most part of gradable adjectives in Catalan follow N, so the EXC construction does not trigger any word order alteration.

––––––––––––––––––––––––

– do not draw a clear cut distinction for the degree word that concerns us here, namely *tan*.

(182)   Postposed adjectives

      a. Pastís deliciós
         cake   delicious
         'Delicious cake.'

      b. Quin pastís tan deliciós!
         what cake   so   delicious
         'What a delicious cake!'

      c. *Quin pastís deliciós!
         what   cake   delicious

It is important to note that the few gradable adjectives that precede the N are not modified by the degree words *tan* and *més*. When they are postposed, then they have to be embedded in a DegP, but as is the case with most adjectives that can be preposed and postposed in Catalan, the meaning changes (i.e., (183b) does not mean the same as (183d)).

(183)   Preposed adjectives

      a. Bon home
         good man
         'Good man.'

      b. Quin bon home!
         what good man
         'What a good man!'

      c. *Quin home tan bon!
         what   man   so   good
         11

      d. Quin home tan bo!

The degree operator is treated as the head of a DegP, which takes an AP as its complement as long as it is headed by a gradable adjective (GA). Consequently, non-gradable adjectives cannot be part of DegPs; they head an AP and precede DegP. Notice that this very linear order occurs between non-gradable adjectives and GAs that are not introduced by a degree operator.

(184)   a. Les   eleccions presidencials emocionants.
   the.PL election   presidential   thrilling

---

[11] What (183c) highlights is that the form *bon* is the allomorph of *bo* that appears preceding N, so it will always trigger ungrammaticality when it appears before N (*home bon* vs. *home bo*).

'The thrilling presidential election.'

b. Quines eleccions presidencials tan emocionants!
   what   election presidential so   thrilling
   'What a thrilling presidential election!'

Interestingly, a GA can precede a DegP headed by *tan/més*, but when this happens, the GA is not modified by the degree word. Instead, it is first merged with the NP and then, the NP is merged with DegP. That is, non-gradable APs merge with N and then, what projects from this merger combines with DegP.

(185)
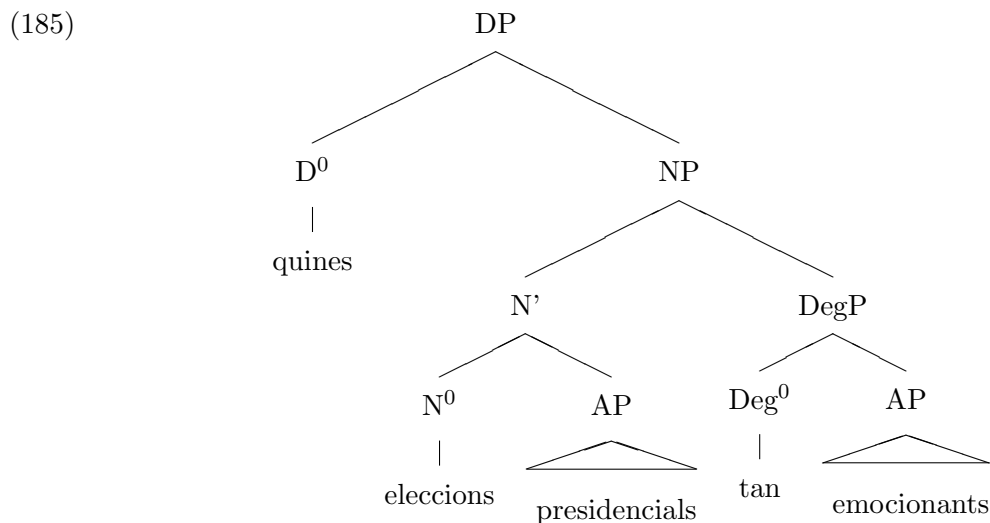
Then, we have to take care of the adverbs that can modify the GA. Leaving aside which ones are semantically or pragmatically sound in the exclamative context, the ones that are accepted in these contexts are manner adverbs, those ending in *-ment* (the Catalan counter-part of the English *-ly*). Intensifiers such as *bastant* ('quite, pretty') and measure phrases such as *deu centímetres* ('ten centimeters') are not available as potential modifiers of the gradable adjective in EXCs,[12] even if they can modify regular APs (*bastant alt* – 'pretty tall')

---

[12]As a matter of fact, measure phrases are not possible preceding a GA in the absolute form, although they are with a GA in a comparative construction, which accords with cross-linguistic data (Kennedy, 2005).

(1)   a. *En Pau és dos metres alt.
         'Pau is two meters tall.'

      b. En Pau és deu centímetres més alt que en Kareem.
         'Pau is centimeters taller than Kareem.'

or comparative constructions (*el pi és deu centímetres més alt que el roure* – 'the pine is ten centimeters taller than the oak').

(186)   a. Que sorprenentment alt!
            'How surprisingly tall!'

        b. Que descaradament ric!
            '(lit.) How shamelessly rich!'

        c. *Que bastant alt!
            'How quite tall!'

        d. *Que deu centímetres alt!
            'How ten centimeters tall!'

Moreover, there is an additional element that can precede the GA and follow the operator: *poc* ('little'). It is rather difficult to test whether it follows or precedes modal adverbs, because non syntactic factors intervene and the combination of the EXC, the adverb and *poc* is difficult to process.

(187)   Quin acudit tan poc divertit!
        '(lit.) What a little funny joke!'

(188)   ??Quin acudit tan descaradament poc divertit!
        '(lit.) What a shamelessly little funny joke!'

(189)   *Quin acudit tan poc descaradament divertit!
        '(lit.) What a little shamelessly funny joke!'

To conclude, there is the issue of the modification of the degree operator. On the one hand, *tan* ('so') cannot be modified by either an intensifier like *molt* ('very') or a measure phrase. And, on the other hand, *més* ('more') can be modified when it occurs in a *regular* comparative but not when it occurs in an EXC.

(190)   Tan

        a. *Quin noi molt tan alt!
            what   boy very so   tall

        b. *Quin noi deu centímetres tan alt!
            what   boy ten centimeters so   tall

(191)   Més

    a. *Quin noi molt més   alt!
       what   boy very more tall

    b. *Quin noi deu centímetres més   alt!
       what   boy ten centimeters more tall

    c. En Pau és molt més   alt
       the Paul is very more tall
       'Pau is much taller.'

    d. En Pau és deu centímetres més   alt
       the Paul is ten centimeters more tall
       'Pau is ten centimeters taller.'

From the previous facts we gather that the GA can only be modified by adverbs, but not intensifiers. This means that AP can include adjuncts, but between the degree operator and AP there is not any other functional projection.

3.4   Summary

In this chapter a syntactic proposal has been provided to account for three main facts that concern EXCs in Catalan: *wh*-movement, the internal structure of the *wh*-phrase and the structure of DegP.

I have argued that EXCs resemble interrogatives and relative clauses. In particular, both EXCs and interrogatives contain a *wh*-feature, so they involve *wh*-movement. On the other hand, unlike interrogatives, EXCs include the complementizer *que*, just like relative clauses.

Also, I have shown that the *wh*-phrase in an EXC must contain a DegP headed by a degree operator. This restricts the number of *wh*-words that can introduce EXCs to a minimal amount. In this thesis I have considered EXCs introduced by the *wh*-phrase *quin-* (which can include a DegP that modifies N) and by the *wh*-degree phrase *que* ('how'). As far as the internal structure of the *quin-*-phrase, I have concluded that there is no predication relation between N and DegP, and concerning the internal structure of DegP, I have adopted a structure in which Deg is a functional category that selects for a gradable AP with which it merges directly.

Chapter 4

The semantics of exclamatives

So far we have reviewed the syntax of EXCs and a number of properties of their structure have been discussed. This chapter characterizes EXCs semantically, according to the framework of Montague semantics, which assumes a semantics of types and makes use of composition operations such as Functional Application and Predicate Modification. The basic claim I make is that EXCs are a special kind of degree construction. They are viewed as a degree construction because they contain a degree operator that occurs in other degree constructions, and a gradable adjective, and they are special because they are not declaratives, but *wh*-clauses, and this has an effect on their denotation.

The first part of the chapter deals with the semantics of the degree component. Much of my discussion deals with the semantic role of the degree operator *tan*, which is analyzed as a polarity sensitive item. This means that it is licensed in the contexts that comply with certain conditions, one of them being the exclamative context.As a degree operator, it establishes an equative relation between a standard degree whose value is contextually given and the degree to which a predicate holds of an individual. Most importantly, the standard degree is considered by the speaker to be high; it is high enough to make the speaker have an attitude towards it.

The second part of this chapter is devoted to mapping the syntax and the semantics. Here is the denotation I propose for the two types of EXCs that are the object of study in this thesis:

(192)   a. Que alt que és en Pau!

'How tall Pau is!'

b. $[\![\text{Que alt que és en Pau!}]\!]^1 = 1$ iff $\text{TAN}(\text{tall}(p))(d_i)$, where $[\![\text{TAN}(d_R)(d_S)]\!] = 1$ iff $d_R \succeq d_S$; and the value of i is given by the context and it is always high.

(193) a. Quina pel·lícula tan bona que he vist!

'What a wonderful movie I've seen!'

b. $[\![\text{Quina pel·lícula tan bona que he vist!}]\!] = 1$ iff $\exists x[\text{movie}(x) \wedge \text{seen}(s)(x) \wedge \text{TAN}(\text{good}(x))(d_i)]$, where $[\![\text{TAN}(d_R)(d_S)]\!] = 1$ iff $d_R \succeq d_S$; and the value of i is given by the context and it is always high.

What these formulae state is that there is a functor which I call TAN that establishes a $\succeq$ relation between two degrees, a reference degree (d_R) and a standard degree (d_S). Characteristically, d_R is the result of applying a gradable adjective interpreted as the measure function $< e, d >$ to its argument; and d_S is d_i, that is, a degree whose value is context dependent. What is most important is that d_S is always high.

4.1   The semantics of the degree component

One of the main claims of this thesis is that EXCs are a special kind of degree construction. The fundamental reason to make this claim is that EXCs contain the degree operator *tan* ('so') or *més* ('more'), which occur in other degree constructions, such as comparatives and result clause constructions. Consequently, EXCs also include a gradable adjective, which is the degree word's argument.

Admittedly, the degree phrase that contains the degree operator and the gradable adjective may not be spelled out. But I want to argue that in this case, there is an implicit DegP that is recovered from context. This means that examples such as (194a) must include an implicit DegP as in (194b).

(194) a. Quina dona!
       what   woman
       'What a woman!'

b. Quina dona   tan/més antipàtica/intel·ligent/alta!
   what   woman so/more nasty/intelligent/tall

---

[1]In this thesis I will generally represent denotations via their translations into predicate logic.

'What a nasty/intelligent/tall woman!'

Note that if we do not postulate the existence of an implicit DegP, then, EXCs without an explicit DegP cannot be analyzed as denoting an equative relation between two degrees in which the standard is high. Instead, we have to think of the N (e.g., *woman*) as denoting a property that is unusual or unexpected. But even if this is the case, if what is unusual or unexpected is the kind of woman, what characterizes the woman will have to be a gradable predicate. To illustrate this with an example, if we utter a sentence like (195a), we are not surprised at the fact that the woman has the unexpected property of being American. Rather, what we mean by (195a) is something like (195b).

(195)   a. ?Quina dona   americana!
             what   woman American
             'What an American woman!'

         b. Quina dona   americana tan intel·ligent!
             what   woman American so   intelligent
             'What an intelligent American woman!'

Note that if the denotation of an EXC did not rely on the semantics of degree, any property that characterizes a woman should be felicitous in this context as long as it were unexpected, but the previous examples show that the property must be gradable.

Two additional remarks are in order: First, note that if (195a) is not completely acceptable is because it might be difficult for the addressee to infer what gradable property that holds of an individual to a high degree can characterize an American woman; and, second, as has been presented in chapter 2, the properties that hold of an individual and whose high degree provoke the utterance of an EXC are only those that lie within the DegP introduced by *tan* or *més*. The other adjectives (irrespectively of whether or not they are gradable) restrict N, but they are not the cause of the utterance of the EXC. In English, the more external adjective (e.g., *intelligent* in (195b)) is the one that triggers the utterance of the EXC. The ones that immediately precede N (e.g., *American*) only restrict N.

There is another interesting contrast that arose in chapter 2 that explains that EXCs always must contain a DegP, even if it is unpronounced. I repeat the examples from chapter 2:

(196)   a. Quin sol que fa!
             'It's so sunny!' (lit. 'What a sun it does!')

b. Quina gana que tenies!, eh?

'You were so hungry!, weren't you?' (lit. 'What a hunger you had!, didn't you?')

I interpret *quin* as the *wh*-counterpart of the indefinite *un* ('a'), so , since there is no phrase introduced by *tan* or *més*, the *wh*-DPs in (196) (i.e., *quin sol, quina gana*) do not seem to include a DegP. However, we can see that their non-*wh*-counterparts are unacceptable, which I interpret as an argument in favor of claiming that EXCs, but not declaratives, always contain a DegP, even if it is not explicit.

(197) a. *Fa un sol
           does a   sun

       b. *Tenies una gana,   eh?
           had.you a   hunger right

These are examples of light verbs like *fer* ('do') and *tenir* ('have'), which take bare NPs as their complements, but when N carries a modifier, then the indefinite *un* occurs. Observe that the previous sentences become acceptable if we add a DegP that modifies N.[2]

(198) a. Fa un sol molt bonic.

           '(lit.) It does a very beautiful sun.'

       b. Tenies una gana increïble, eh?

           '(lit.) You had an incredible hunger, right?'

The fact that N-modification by a DegP makes the previous sentences acceptable suggest that this is precisely what an EXC includes, even if it is not spelled out. A DP headed by *quin* in an EXC always contains modification; N is modified by a DegP headed by *tan*, so this *quin*-phrase is a suitable complement for a light verb.

(199) Quines mans (tan brutes) que portes!
       what   hands so   dirty   that wear.you bring
       '(lit.) What dirty hands you bring!'

Now, if *quin* is the same indefinite quantifier in both EXCs and interrogatives, how can be the facts in (200) accounted for?

---

[2]These light verb constructions are analyzed in Espinal (2004), where she treats the indefinite as being an existential quantifier over degrees instead of an existential quantifier over individuals. I refer the reader to her work for details.

(200)   a. *Quin sol fa?
            what sun does

        b. *Quina gana   tens?
            what   hunger have.you

Crucially, their unacceptability is caused by the same cause that rules out the sentences in
(197). But another comment is in order: The ill-formed sentences in (197) become acceptable
if we add a DegP that modifies N. Why is this not so with interrogatives?

(201)   a. *Quin sol molt bonic   fa?
            what sun very beautiful does

        b. *Quina gana   increïble   tens?
            what   hunger incredible have.you

Though it may be pragmatically odd, *wh*-DPs can contain a DegP. But in all these cases,
asking a question – i.e., not knowing the value of the *wh*-variable – is at odds with DegP being
able to evaluate the N. Rather, a DegP in an interrogative *wh*-question classifies. Consider
the following examples with lexical verbs:

(202)   a. #Quin nen preciós   heu   triat   per a l'anunci?
            what   boy beautiful aux.you chosen for   the commercial
            'Which/what beautiful boy have you chosen for the commercial?'

        b. #Quin nen molt ros   heu   triat   per a l'anunci?
            what   boy very blond aux.you chosen for   the commercial
            'Which/what very blond boy have you chosen for the commercial?'

        c. #Quin nen massa ros   heu   triat   per a l'anunci?
            what   boy too   blond aux.you chosen for   the commercial
            'Which/what too blond boy have you chosen for the commercial?'

These data show that the problem does not only affect bare nouns in light verb construc-
tions. As a matter of fact, count nouns selected by lexical verbs are quite odd when they are
modified by evaluative adjectives and adjective modification in general. Observe that non
gradable adjectives are not odd in these contexts:

(203)   Quin nen polonès heu   triat   per a l'anunci?
        what boy Polish   aux.you chosen for   the commercial
        'Which/what Polish boy have you chosen for the commercial?'

In contrast, in an EXC, the speaker is acquainted with the value of the *wh*-variable. More precisely, as will be commented on in chapter 5, in EXCs as well as declaratives, the speaker is committed with their descriptive content, which makes it possible to use a DegP to evaluate the referent of a N.

Regarding *quin*, we can say that it introduces interrogatives and EXCs, but its distribution does not parallel in both constructions. I have suggested that the motivation for this difference has to do with commitment to the descriptive content. In an interrogative, the speaker does not know the value of the *wh*-variable, which in the previous examples amounts to saying that he/she does not know the identity of the individual that is being evaluated. This is the reason why evaluative APs in general are deviant in this environment. However, in EXCs the speaker is committed to their content, so evaluation is possible. This could explain the contrasts between these two types of clause depicted above.

Summing up, it has been argued that EXCs are a kind of degree construction, because they always include a DegP, even when it is unpronounced.

4.1.1 Background on gradable adjectives and degree semantics

The purpose of this subsection is to define the notions that will be employed throughout this chapter to spell out my proposal. These include the concepts of gradable adjective, open and closed scale, adjective modification and attitude towards a degree.

4.1.1.1 What defines a gradable adjective

I am assuming along with Kennedy (1999, 2001) and Kennedy and McNally (2005) that gradable adjectives denote functions that take objects as their input and return a degree.

A scale S is defined according to three parameters, which are specified in the lexical entry of each gradable predicate (Kennedy, to appear): It contains a set of *degrees* (1) (analyzed as abstract representations of measurement); a *dimension* (2) (which indicates the property being measured, such as height, length or weight), and an *ordering relation* (3) (which distinguishes increasing vs. decreasing predicates, such as *tall* and *short*).

Intervals are characterized as dense, convex subsets of scales (Kennedy, 2001; Meier, 2003) that have the following property:[3]

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[3]I abstract away from the distinction between positive and negative intervals (for the details, see von

(204) $\forall p1, p2 \in d \forall p3 \in S[p1 \prec p3 \prec p2 \rightarrow p3 \in d]$

From (Landman, 1991, 110) quoted in (Kennedy, 2001, 52)

What the previous formula states is that an interval d is an ordered set of degrees that are mapped onto a scale, so if point 3 is in the set of points of the scale and points 1 and 2 are in the set of points of d and point 3 is between points 1 and 2, then point 3 is a point of d, too.[4]

Gradable adjectives (henceforth GAs) are vague in the sense that what counts as being ADJ is contingent on a standard that the context provides. To handle this vagueness, Klein (1980) introduces the concept of a comparison class, which he defines as follows:

> ... a comparison class is a subset of the universe of discourse which is picked out
> relative to a context of use.

From (Klein, 1980, 13)

Specifically, a comparison class gathers individuals that share some property. It need not be a natural class, but it can be any non-fixed set of individuals that have a contextually relevant property in common.

To exemplify this notion, Klein (1980) takes the example *Lana is clever*. If we, as addressees, have no further information, we take *clever* to apply to a broad comparison class that might include all individuals in the universe. And, presumably, encyclopedic knowledge would lead us to make the hypothesis that Lana is a person, since cleverness is usually applied to human beings. However, if we know that Lana is a monkey, then the comparison class

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Stechow (1984b); Kennedy (2001)), because it does not have any important effect on what is to be said about EXCs. I will be using the term *degree* to refer to positive intervals, by default.

[4]Notice that employing intervals instead of points on a scale makes clear that gradable adjectives are monotonic: If Pau is 2 meters tall he also is 1,95 meters tall. Or as Heim (2000) puts it:

(1)   A function of type $< d, et >$ is monotone iff $\forall x \forall d \forall d'[f(d)(x) = 1 \wedge d' \prec d \rightarrow f(d')(x) = 1]$

And if gradable adjectives were to be interpreted as the mapping of individuals onto degrees (as is the case in here) instead of relations between degrees and predicates (as in Heim (2001)), then this formulation would go as follows:

(2)   A function of type $< e, d >$ is monotone iff $\forall x \forall d \forall d'[f(x) \succeq d \wedge d' \prec d \rightarrow f(x) \succeq d']$

In sum, this view of degrees as intervals captures another property of gradable predicates.

may contain the set of monkeys and, thus, the speaker is evaluating Lana's cleverness with respect to the average cleverness the individuals in this set have.

So context provides a standard of comparison, but this standard depends on a specific comparison class. Here is a first formulation of how it is assumed context intercedes in the denotation of GAs:

(205)   a. $[\![\text{Lana is clever}]\!]^c = 1$ iff Lana is clever with respect to the comparison class c

        b. $[\![\text{Pau is tall}]\!]^c = 1$ iff Pau is tall with respect to the comparison class c

According to the notion of GA adopted here and advanced at the beginning of the section, this is how the denotation of the adjectives *clever* and *tall* could be formalized:

(206)   a. $[\![\text{clever}]\!] = \lambda x.\text{clever}(x)$

        b. $[\![\text{tall}]\!] = \lambda x.\text{tall}(x)$

Where the GAs *clever* and *tall* are of type $< e, d >$, so if we apply ADJ to the individual variable we obtain a degree. For instance, if Pau is 2.10 m tall, the adjective $tall_{pau}$ will give back 2.10 m.

Consequently, GAs cannot combine directly with Ns, which are of type $< e, t >$ (predicates of individuals). Rather, GAs need to combine first with either a measure phrase like *5 feet, one hour* or with a null positive morpheme in order to become predicates of type $< e, t >$, which will combine with Ns by the rule of Predicate Modification. This null positive morpheme[5] (henceforth POS) comes from von Stechow (1984a) and is a function that denotes the property of having a degree of ADJ-ness that equals or exceeds ($\succeq$) a standard of ADJ-ness,[6] taking into

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[5]According to Kennedy and McNally (2005) some languages like Mandarin Chinese contain a morphological marker for the positive form, as is stated in (Sybesma, 1999, 27), but it is null in languages like Catalan or English.

[6]Under this view according to which degrees are intervals, the basic relations between degrees – i.e., $\prec, \succ, \succeq$ – are defined as follows:

(1)   From (Kennedy, 2001, 54)

      $\forall d_1, d_2 \in D$

      a. $d_1 \succ d_2 \leftrightarrow d_1 \cap d_2 = d_2 \wedge d_1 \neq d_2$

      b. $d_1 \prec d_2 \leftrightarrow d_1 \cap d_2 = d_1 \wedge d_1 \neq d_2$

      c. $d_1 \succeq d_2 \leftrightarrow d_1 \cap d_2 = d_2$

account that this value is determined based on certain features of the context of utterance, such as expectations/interests of the participants in the discourse, what is being talked about, etc. (which we will encode as the contextually-determined variable C). It is a function of type $<< e, d >, < e, t >>$ and this is how Kennedy and McNally (2005) analyze it:

(207) $\llbracket \text{POS} \rrbracket = \lambda G_{<e,d>} \lambda x. \exists d[\mathbf{stnd}(d)(G)(C) \wedge G(x) \succeq d]$

Where **stnd** is a context-dependent function that establishes a relation between degrees on a scale and contexts. It represents the appropriate standard of comparison for this GA in the context of utterance (given a specific comparison class).

In prose, this means that the function POS takes two arguments. First, a GA and, then, an individual; and the POS relation holds iff there is a standard for ADJ for C and when we apply ADJ to x, the result is d.

Let us proceed with lambda conversion and replace G by a GA, for example *tall*.

(208) $\llbracket \text{POS} \rrbracket (\llbracket \mathbf{tall} \rrbracket) = \lambda G_{<e,d>} \lambda x. \exists d[\mathbf{stnd}(d)(G)(C) \wedge G(x) \succeq d](\llbracket \mathbf{tall} \rrbracket)$

   $= \lambda x. \exists d[\mathbf{stnd}(d)(\llbracket \mathbf{tall} \rrbracket)(C) \wedge \llbracket \mathbf{tall} \rrbracket(x) \succeq d]$

This means that for an individual x to be (POS-)tall implies that there is a degree that counts as a standard of tallness for a determinate comparison class and x is at least as tall as this degree.

Summing up, POS is a function that applies to bare APs and returns the set of individuals that meet or surpass a standard for a particular individual in a given context. So, when we say *Pau is tall* we interpret that the bare AP contains a null morpheme that turns a measure function (the GA) into a predicate of individuals, which will be suitable to combine with the copula.

4.1.1.2   Types of gradable adjectives

So far we have mentioned dimensions such as height or length, which appear to be unbounded. This is not so in all the cases. Scales can be open – if they lack a maximal or minimal element – or closed – if they have either a maximal or a maximal element.

Kennedy and McNally (2005) work on this distinction and give formal evidence of it by means of the distribution of proportional modifiers such as *half, mostly* or *half of the way.*

They draw a line between the two types of adjectives in (209a) – for the closed scale – and (209b) – for the open scale.

(209)   a. full, closed, invisible

        b. long, expensive, old

Observe the effect of combining them with proportional modifiers (from (Kennedy and McNally, 2005, 352,53)):

(210)   Closed scale adjectives

        a. The glass is half/mostly full

        b. Her eyes were half/most of the way closed

        c. These images are half/mostly invisible

(211)   Open scale adjectives

        a. ??The rope is half/mostly long

        b. ??A 15-year-old horse is half/mostly old

        c. ??That car was half/mostly expensive

This contrast can be explained by the semantic restrictions that this kind of modifier involves:

(212)   a. $[\![\text{half}]\!]([\![\textbf{full}]\!]) = \lambda G_{<e,d>}\lambda x.\exists d[\textbf{diff}(\textbf{max}(S_G))(d) = \textbf{diff}(d)(\textbf{min}(S_G)) \wedge G(x) \succeq d]$

        b. $[\![\text{mostly/most of the way}]\!] = \lambda G_{<e,d>}\lambda x_e.\exists d[\textbf{diff}(\textbf{max}(S_G))(d) \prec \textbf{diff}(d)(\textbf{min}(S_G)) \wedge G(x) \succeq d]$

Where S_G represents the scale associated with a determined G, **diff** is a function that takes two degrees and returns their difference, and **min** and **max** refer to a minimal degree and a maximal degree, respectively. For example, (212a) is interpreted as a function that takes as arguments a GA and an individual, and it comes out true iff there exists a degree d such that the difference between the maximal degree on the scale of this GA and d equals the difference between d and the minimal degree on the scale of this GA, and the function G applied to the individual x gives out d. Since the function *half* looks for the difference

between a maximal and a minimal degree on a scale, it is clear that it must combine with GAs whose meaning contains a maximal and a minimal boundary. Hence, this modifier is not compatible with open-scaled adjectives.

But consider *half* applied to *full*.

(213) $[\![half]\!]([\![\mathbf{full}]\!]) =$

   $\lambda G_{<e,d>}\lambda x.\exists d[\mathbf{diff}(\mathbf{max}(S_G))(d) = \mathbf{diff}(d)(\mathbf{min}(S_G)) \wedge G(x) \succeq d]([\![\mathbf{full}]\!])$

If an object is half full it means that there is a degree d, and the distance between 100% fullness and d equals the distance between 100% emptiness and d.

There has to be some formal test to check what type every GA is. So far, proportional modifiers have proven useful for distinguishing which GAs were associated with closed scales. Now we can use endpoint-oriented modifiers (*completely, fully, 100%*) to check whether a scale has an upper bound or a lower bound. Before we go on, let us say something about adjective polarity: When two GAs share a dimension – but they have different polarities (i.e., they differ in the direction on the scale. For instance, if the dimension is wetness, *wet* and *dry* have different polarities, because the direction of the former heads for ∞, whereas the latter heads for 0) –, then modifiers that pick out a maximal degree (such as *completely*) will merge with positive GAs with a scale that has an upper endpoint. In contrast, modifiers that pick out a maximal degree will merge with negative GAs whose scale has a lower endpoint. In the following example we see how this works (from (Kennedy and McNally, 2005, 355)):

(214)   a. Her brother is completely ??tall/??short (open scale pattern)

   b. The room became 100% ??loud/quiet (lower closed scale pattern)

   c. We are fully certain/??uncertain about the results (upper closed scale pattern)

   d. The room was 100% full/empty (closed scale pattern)

Following Unger (1975) and Kennedy and McNally (2005), we refer to GAs with closed scales (and, thus, with an inherent standard of comparison) as *absolute* and to the ones with open scales (and, thus, with a standard of comparison that depends on a determinate comparison class) as *relative*.

So far formal evidence has been provided that scale structure matters in the semantics of GAs. It can also be shown that the distinction drawn between relative and absolute GAs has

a semantic effect. Evidence comes from entailment patterns, which derive from the conditions that absolute GAs impose when they merge with POS to create a predicate of individuals.

(215)   a. $[\![\mathrm{AP}_{min}]\!] = \lambda x_e.\exists d[d \succ \mathbf{min}(S_G) \wedge \mathbf{m}_A \succeq d]$

Where $\mathbf{m}_A$ is the measure function introduced by the adjective.

b. $[\![\mathrm{AP}_{max}]\!] = \lambda x_e.\exists d[d = \mathbf{max}(S_G) \wedge \mathbf{m}_A \succeq d]$

Where $\mathbf{m}_A$ is the measure function introduced by the adjective.

(215a) is true of an object only if it has a non minimal degree of G (the adjectival head). On the other hand, (215b) is true of an object only if it equals a maximal level of G. Notice that these conditions are clearly different from the conditions that apply for relative GAs such as *clever* or *tall* in (208). In (216) I adapt (208) for comparison:

(216) $[\![\mathrm{AP}_{relative}]\!] = \lambda x.\exists d[\mathbf{stnd}(d)(G)(C) \wedge \mathbf{m}_A(x) \succeq d]$

Where $\mathbf{m}_A$ is the measure function introduced by the adjective.

So far formal evidence has been provided that scale structure matters in the semantics of GAs. It can also be shown that the distinction drawn between relative and absolute GAs has a semantic effect. Evidence comes from entailment patterns, which derive from the conditions that absolute GAs impose when they merge with POS to create a predicate of individuals. Here are a few predictions presented in Kennedy and McNally (2005):

- If a minimum-standard GA is denied, the entailment is that there is a zero degree of ADJ-ness.

  (217)   #My hands are not wet, but there is some water on them

- The assertion *x is maximum-standard* ADJ entails that the object to which this is applied has a maximal amount of ADJ-ness.

  (218)   #The plant is dead, though one part of it still appears to be alive

- In pairs of antonyms of absolute adjectives, when one is negated, the other is entailed. The reason is clear: Positive GAs impose minimum standards, while negative GAs impose maximal standards. A minimal positive degree corresponds to a maximal negative degree on the same scale, so these entailments are drawn from the conditions set in (215).

(219)   The door is not open (closed) $\models$ The door is closed (open)

As expected, these tests do not give out the same results when applied to relative GAs:

(220)   a. That film is interesting, but it could be more interesting

        b. The door is not large (small) $\models$ $//$ = The door is small (large)

The example in (220a) shows that, even though the degree of ADJ-ness exceeds the standard of comparison (it is in the positive form), there is more space above to be filled with degrees of ADJ-ness. And what (220b) shows is that a pair of antonym relative GAs do not stand in the same relation with respect to the scale. In other words, there might be a zone of non largeness that does not coincide with a zone of smallness, and that is why relative GAs cannot be defined along the lines of (215).

A final remark about entailments: They are useful to test whether an absolute GA has a minimum or a maximum standard. More specifically, proportional modifiers combined with maximum standard GAs do not entail x *is* ADJ, but the opposite does hold for minimum standard GAs:

(221)   a. The plant is half dead $\models$ The plant is not dead (G_{max})

        b. The door is half open $\models$ The door is open (G_{min})

To recap, a typology of GAs has been presented that has to do with the characteristics of the scales associated with GAs. Specifically, GAs with a closed scale can have a minimum standard or a maximum standard, and their standard of comparison need not rely on a comparison class, but rather their own lexical properties can determine it.

4.1.1.3   Adjective modification

So far we have mentioned the existence of a null morpheme that enables the GA to introduce a standard degree (POS). To discuss the semantics of the degree operators *tan* and *més* we need to learn about other modifiers of GAs that have different effects on the final degree that applies to an individual. Following Kennedy and McNally (2005b) I will mention true degree morphemes, intensifiers and scale adjusters.

The most interesting prediction of this approach is that it captures the possibility of iteration of degree modifiers. In particular, a true degree morpheme can be preceded by an

intensifier, and a scale adjuster can follow a true degree morpheme. What cannot be the case is an intensifier being preceded by a true degree morpheme or a scale adjuster being preceded by an intensifier, just to give a few examples.[78]

(222)   a. Pau is very tall

         b. Pau is 30 cm taller than Grace

         c. *Pau is 30 cm very tall

         d. *Pau is very taller than Grace

True degree morphemes are of type $<< e, d >, < e, t >>$ – as a matter of fact POS is to be considered an instance of this type of modifier. In this group we find measure phrases, *that* and, interestingly, *how* (we will come back to this). The authors explain their denotation as follows:

> [they map] a measure function onto a property of individuals expressed as a re-
> lation between degrees: the degree derived by applying the measure function to
> the individual argument of the predicate, and a standard degree specified by the
> degree morpheme itself.

To describe this with an example, in *Pau is 2.15 meters tall*, *2.15 meters* is a measure phrase and, thus, a true degree morpheme. The two degrees that are mentioned are Pau's actual tallness and the degree denoted by the measure phrase.

The semantic composition for this kind of adjective modification is the following:

(223)   a.
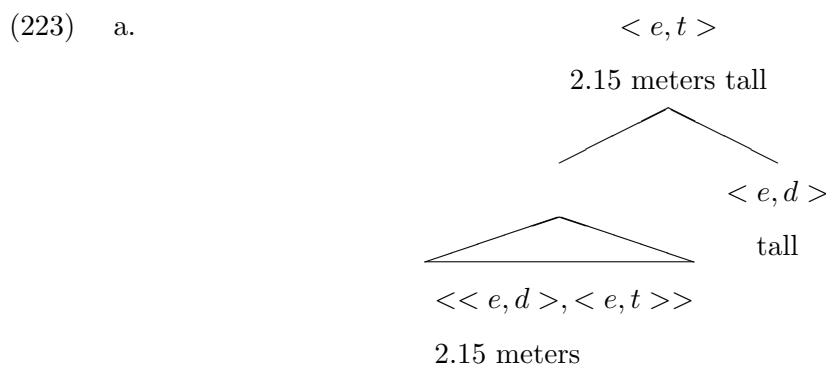
[7]Notice that the intensifier *very* can only combine with the true degree morpheme POS (see Kennedy and McNally (2005)). More research has to be done to find out if there are intensifiers that can precede true degree morphemes irrespectively of whether they are POS or measure phrases.

[8]I refer the reader to Kennedy and McNally (2005,b) for further details, for example, the reason why *much* can precede the comparative, but not *very*. These details do not concern us here for the purposes of this thesis.

b. $[\![2.15 \text{ meters}]\!]([\![\text{tall}]\!])$

$= \lambda G \lambda x. \exists d[d \succeq \mathbf{2.15 \ meters} \wedge G(x) \succeq d]([\![\mathbf{tall}]\!])$

$= \lambda x. \exists d.[d \succeq \mathbf{2.15 \ meters} \wedge \mathbf{tall}(x) \succeq d]$

One of the most important aspects of true degree morphemes is the fact that, except for POS, an individual being *true-degree-morpheme*-ADJ is not necessarily ADJ to a standard degree. That is, a person who is 1.50 meters tall is not necessarily tall if we take as a comparison class the set of human beings.

A second kind of modifier is what Kennedy and McNally (2005b) call *intensifiers*, of type $<< e,t >, < e,t >>$. Their main representative is *very*, and its basic characteristic is that effectively it merges only with predicates of individuals that have reached this status as a consequence of the GA merging first with POS. Interestingly, the effect it has is the resetting of the comparison class to which the GA applies. More specifically, if *tall* has as a comparison class all human beings (by default), *very tall* has as a comparison class all tall human beings. In effect, the set of individuals to which ADJ applies is drastically reduced to only those individuals that include ADJ plus POS. This is how the derivation goes:

(224)   a.
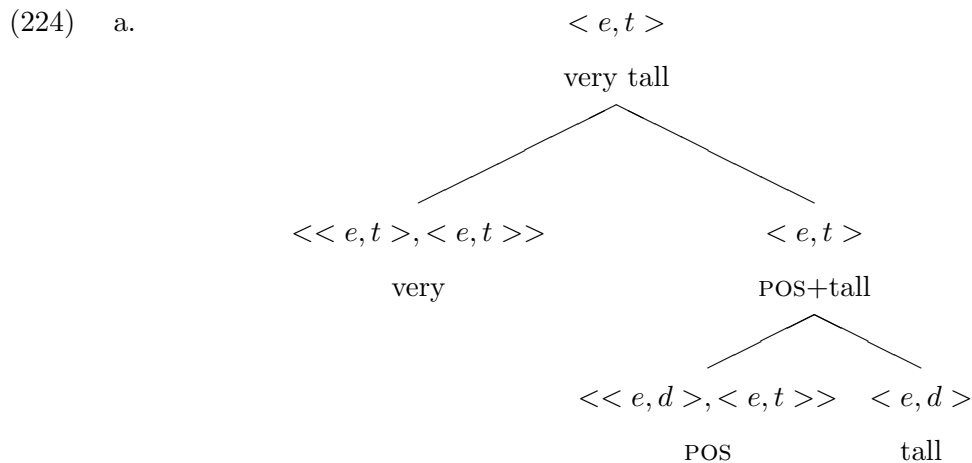
b. $[\![\text{very}]\!]^c([\![\mathbf{tall}]\!])$

$= \lambda G \lambda x. \exists d[\mathbf{stnd}(d)(G)(\lambda y[\![\text{POS}(G)(y)]\!]^c) \wedge G(x) \succeq d]([\![\mathbf{tall}]\!])$

$= \lambda x. \exists d[\mathbf{stnd}(d)([\![\mathbf{tall}]\!])(\lambda y[\![\text{POS}([\![\mathbf{tall}]\!])(y)]\!]^c) \wedge \mathbf{tall}(x) \succeq d]$

Finally, scale adjusters are the comparative, *too* and *enough* (once they have merged with their clausal argument). They are of type $<< e,d >, < e,d >>$, and the effect they have is to change the set of values on the scale associated with a GA right where the degree denoted by the clausal complement points at, so the scale's minimal level is reset. This amounts to

saying that, in the sentence *Grace is taller than Liz*, if we have a set of individuals like in (225) with their respective tallness, the effect the scale adjuster causes is like in (226).

(225)   a. Grace → 1.70 m

       b. Liz → 1.65 m

       c. Jordan → 1.75 m

       d. Barbara → 1.60 m

(226)   a. Grace → 1.70 m

       b. Liz → 1.65 m

       c. Jordan → 1.75 m

       d. Barbara → 1.65 m

As can be seen in (226), the value ADJ-*er than Liz* returns on ⟦Barbara⟧ is different than the value ADJ returns on ⟦Barbara⟧. That is explained by the fact that the new minimal level is not 0 m as before applying the scale adjuster, but rather is Liz's tallness.

The way scale adjusters and GAs combine is represented in the following tree:

(227)   a.
$$< e, d >$$

taller than Liz

$$<< e, d >, < e, d >> \quad < e, d >$$

-er than Liz   tall

b. ⟦-er than Liz⟧(⟦**tall**⟧)

   $= \lambda G \lambda x. \exists d[d \succ G(l) \wedge G(x) \succeq d](⟦\textbf{tall}⟧)$

   $= \lambda x. \exists d[d \succ \textbf{tall}(l) \wedge [\textbf{tall}(x) \succeq d]$

The immediate consequence of this kind of modification is that the result of the combination of a GA and the comparative does not yield a predicate of individuals (type $< e, t >$), but rather another measure function, just like its input but with a different minimal degree. So it is expected to merge with POS or any other true degree morpheme (of type $<< e, d >, < e, t >>$) to create the appropriate AP that can combine with an NP.

The classification of degree modifiers is summarized below:

(228)

Modifier	Semantic type	Example
True degree morpheme	$<< e,d >, < e,t >>$	*two meters*
Intensifier	$<< e,t >, < e,t >>$	*very*
Scale adjuster	$<< e,d >, < e,d >>$	*-er than X*

4.1.1.4 Attitude towards a degree

In the preceding section a classification of degree modifiers has been described. In this sub-section I will present Katz (2005)'s analysis of a type of manner adverbs that express an attitude towards the degree to which a GA holds of an individual. Crucially, Katz's analysis will help us understand the *at least*-entailment that an EXC involves. By *at least entailment* I mean that if an EXC is true of an individual with a property to degree d, it will hold of that individual for all degrees $d' \succ d$.

Characteristically, attitude toward degree (henceforth ATD) modifiers (Katz, 2005) differ from regular modifiers of scalar predicates (*very, completely, somewhat*) in that the former do not make reference directly to a degree on the scale. Rather, they do so indirectly by specifying a propositional attitude that is held toward this fact.

(229)   a. Pau is surprisingly tall.

         b. Pau is very tall.

As will be shown below, both (229a) and (229b) make reference to a degree on a scale that is rather high. But what (229a) actually says is that the fact that Pau is tall to the degree he is tall is surprising. In effect, the degree to which a predicate holds of an individual evokes a particular mental state in the speaker and this is formally encoded by ATD modifiers.

At this point it seems reasonable to ask whether it makes sense to entertain an attitude towards a degree. Although a degree can be considered an individual (for example, equivalent to *Pau's size*), Katz (2005) argues that propositional attitude predicates do not take individuals as their input, but rather sets of possible worlds. Otherwise, the paraphrase for (229a) could be like this:

(230) $\exists d[\text{size}(Pau) = d \wedge \text{surprising}(d)]$

So, even though the attitude is the result of an individual having a predicate to a certain degree, this is represented as a proposition that feeds the attitude predicate, in order to

comply with the denotation of propositional predicates given by Hintikka (1969) and the facts below:

(231)   a. Her false teeth surprised me.

         b. It surprised me that she had false teeth.

Zucchi (1993) claims that the previous clauses are comparable. These attitude predicates may seem to be able to take an individual as their subject, but in fact they induce a propositional meaning on the apparent individual. That is how (231a) ends up meaning the same as (231b). And this is an additional reason not to analyze the constructions with ATD modifiers as in (230).

Coming back to the *at least*-entailment mentioned above, Katz (2005) shows that ATD modifiers (e.g., *frustrating* in (232a)) behave differently than adverbial attitude predicates (e.g., *frustratingly* in (232b)) and adjectival attitude predicates (e.g., *frustrating* in (232c)).

(232)   a. She was frustratingly late.

         b. Frustratingly, she was ten minutes late.

         c. It is frustrating that she was ten minutes late.

Specifically, only the ATD modifier exhibits what Katz (2005) calls *upward monotonicity* or *at least*-entailment. It seems that the attitude in an ATD modifier is not directed towards a particular degree, but to a whole range of degrees, something that does not hold for the parenthetical uses of the attitude adverbs and adjectives like the ones in (232b) and (232c).

(233)   (from Katz (2005))

         a. Surprisingly, the pool is 60% full.

             We thought it would be either totally full or empty.

         b. It is surprising that the pool is 60% full.

             We thought it would be either totally full or empty.

         c. (At 60% full) The pool was surprisingly full.

             ??We thought it would be either totally full or empty.

This *at least*-entailment – the monotonicity effect – that Katz (2005) mentions is made clear by the fact that, whereas in the first two examples, the attitude holds only necessarily for a single degree on the scale (60% of fullness), in the case of the ATD modifier, the attitude

holds for any degree that exceeds 60% of fullness. The paraphrase of (233c) could be this one:
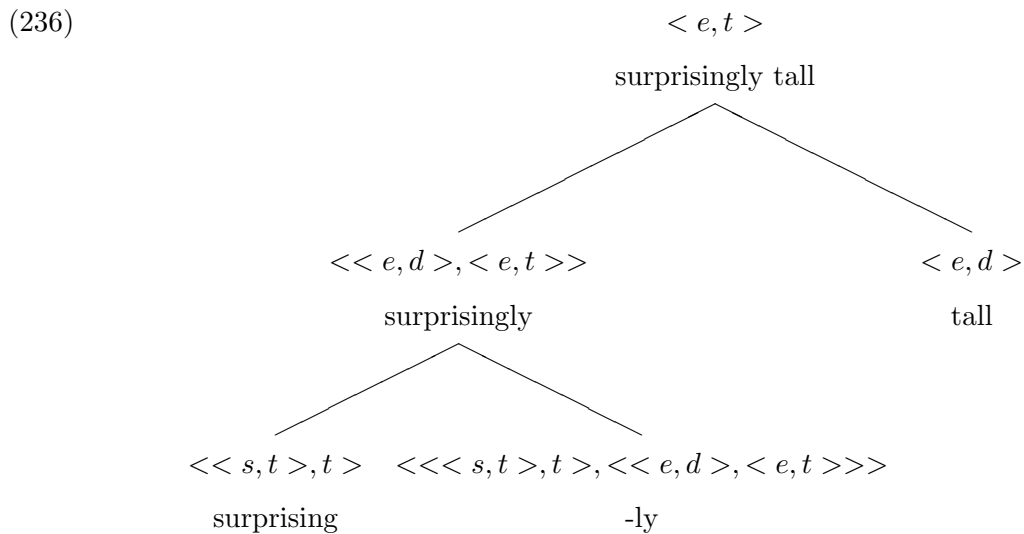
(234)   It is surprising that the pool is as full as it is and it would be surprising were it fuller.

Interestingly, then, monotonicity is not part of attitude predicates, but of ATD modifiers. This leads Katz to propose there is a universal quantifier over degrees in the semantics of ATD modifiers that makes it possible to account for the *at least*-entailment.

(235) $[\![\text{surprisingly}]\!] = \lambda P_{<e,d>}\lambda x_e.\exists d[P(x) = d \land \forall d'[d' R_P d \to \text{surprising}(^\wedge[P(x) = d'])]]$
        From (Katz, 2005, 192)

Roughly, what (235) states is that *surprisingly* denotes a function that takes a GA (which he calls P) and returns a function that takes an individual x and comes out true only if there is a degree d such that it is the result of applying P to x and for all degrees d' such that d' is in a relation established by the polarity of P with d (either $\succ$ or $\prec$), then it is surprising that x is P to degree d'. The sequence after the conjunction is what allows the *at least*-entailment. Crucially, R is meant to cover either the $\succ$ relation or the $\prec$ relation, depending on the polarity of the GA. Specifically, if Pau is surprisingly short, then, on a scale of tallness, all the degrees under the degree to which Pau is short will have the effect of the ATD modifier, whereas if the sentence says that Pau is surprisingly tall, then the points on the scale that will be taken into account will be the ones above Pau's height.

To sum up, it has been made clear that ATD modifiers are not just manner adverbs that modify GAs. Rather, they are type shifters (they take a measure function and return a predicate of individuals). In Kennedy and McNally (2005b)'s terms, they should be classified as true degree morphemes, along with POS and measure phrases, because they are of type $<<e, d>, <e, t>>$. Thus, the compositional semantics goes as follows:

(236) $< e, t >$
                                                      surprisingly tall

                   $<< e, d >, < e, t >>$ $< e, d >$
                        surprisingly   tall

          $<< s, t >, t >$ $<<< s, t >, t >, << e, d >, < e, t >>>$
              surprising   -ly

This parallelism correctly predicts that ATD modifiers cannot co-occur with measure phrases or with POS. As a matter of fact, Katz points out that the different entailment patterns that arise when ATD modifiers combine with the different type of GAs presented above are derived by the lack of merger between them and POS:

- Predicates with minimum standard values give rise to the entailment.

    (237)   The towel is surprisingly wet → The towel is wet.

It was presented in the preceding section that absolute GAs with a minimum degree only require for a minimal amount of ADJ-ness to reach a standard degree of ADJ-ness. Since the denotation of ATD modifiers includes an existential quantifier over degrees (cf. (235)), this condition is met and so the entailment follows.

- Maximum standards never give rise to the entailment.

    (238)   The towel is surprisingly dry –/→ The towel is dry.

In this case, for the standard to be reached, the degree to which G holds has to contain 100% of ADJ-ness. Since this is not required by the denotation of the ATD modifier, the entailment does not necessarily follow.

- Contextual standards give rise to strong implicature.

    (239)   Steve is surprisingly tall –implicates→ Steve is tall.

According to Katz, since the standard of comparison for a relative adjective is contingent on a comparison class (and, hence, on the context), we cannot talk about entailments, but about conversational implicatures. That is why they can be canceled (cf. *Although he's quite short, Steve is surprisingly tall, given his background*). But the grounds on which Katz (2005) makes this argument might not be well motivated. Notice that the context in which the implicature is canceled is one that is based on a mismatch in the comparison class. In other words, the same could be said about POS and even VERY: *Although he's quite short, Steve is tall, given his background; Although he's quite short, Steve is very tall, given his background*. But, according to Kennedy and McNally (2005b), to be very tall entails being at least tall, since the comparison class to which *very* applies is the class of tall individuals. That is, if *Steve is surprisingly tall* implicates (but not entails) that Steve is tall, likewise *Steve is very tall* should implicate (and not entail) that Steve is tall, which is an undesirable result. Alternatively, I will assume that the implication that Steve is tall in *Steve is surprisingly tall* is derived by the denotation of *surprisingly* and will not identify it with an implicature.

To conclude, we have reviewed the main characteristics of a kind of modifiers that, unlike regular degree modifier, do not point directly to a degree on a scale, but, indirectly, by evoking a mental state towards the actual degree to which some predicate holds of an individual. ATD modifiers reveal an interesting behavior because of their monotonicity effect, which differentiates them from classical parenthetical adverbs.

4.1.2   The degree operator

This section addresses the issue of the characterization of the degree operator that appears in an EXC. It is mainly devoted to *tan* ('so'), which surfaces not only in EXCs, but also in many other contexts. I will be assuming that *que* ('how') is the *wh* counterpart of *tan* (*tan*[+wh]) and will treat separately the presence of *més* ('more') as the degree operator in EXCs. The section starts with a preliminary analysis, which is then compared to previous analyses of *tan* in result clause constructions and to other degree operators such as *too* and enough. The second part of the section considers a broader range of data concerning *tan* and presents this degree operator as a polarity sensitive item, which needs to be licensed by the appropriate context. Finally, an analysis of *més* is provided and a number of unanswered questions regarding its appearance in an exclamative context are brought up.

4.1.2.1   Proposed analysis

This section discusses the question of how *tan* can be characterized given the background presented in (4.1.1). To do so, I first establish a difference between *as* and *so*, which are both spelled out as *tan* in Catalan. Afterwards, I propose a denotation of *so-tan*, which I assume has the same semantics in a result clause construction and in an EXC.

Briefly, *tan* is a degree operator that establishes an equative relation between two degrees. At this point, I consider two different *tan*s: One that can be translated as *as* and another one that can be translated as *so*. *As-tan* occurs in equative comparatives, so it will be analyzed as a scale adjuster (of type $<< e, d >, < e, d >>$ once it has combined with the appropriate clausal dependent). For example:

(240)   En Pau és tan alt com en Kareem
        the Pau is as tall as   the Kareem
        'Pau is as tall as Kareem.'

In (240) an equative relation is established between the degree to which Pau is tall and the degree to which Kareem is tall. According to our assumptions, in this construction Kareem's height becomes the minimal level of a new scale. Imagine Kareem is 2.10 meters tall. Then this scale ranges from 2,10 to ∞, and Pau's tallness is at least this height. The equative in (240) is a function that takes the degree to which Pau is tall given a standard scale and returns the mapping of this very same degree on a new scale with a minimal level that represents the 'as-tall-as-Kareem-ness'.

Thus, the scale adjuster *as-tan* can be defined as follows:

(241) $[\![\text{as-tan}]\!] = \lambda d \lambda G_{<e,d>} \lambda x. G'(x)$

        Where *G'* is a function like *G* except that for all *x*, if $G(x) \prec d$, *G'(x)=d*.[9]

What interests us here is that there is no restriction as to whether or not the degree of tallness of Kareem is high or low. Indeed, Pau and Kareem could both be 1.50 meters and

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[9]In this thesis, I will treat the equative relation as $\succeq$ following Cresswell (1976); Klein (1980) and Kennedy (1999), among others. I agree with them that being as ADJ as someone can be interpreted as being *at least* as ADJ. But Neeleman et al. (2004), among others, argue that the relation that underlies *as* is $=$, because it depends on the context whether we can have the *at least* reading. For instance, if we say *John has three pounds*, we can understand that he has exactly three pounds or that he has at least three pounds, if we add the sentence *He just received his salary*. What Neeleman et al. (2004) highlight is that *as* can express the $=$ relation, which *more* and *less* cannot.

the sentence would be equally true. In contrast, *tan* in EXCs does have this restriction: The speaker must consider that the degree to which an individual is ADJ is high. Crucially, this constraint also holds for *tan* in result clause constructions ((242)), so my hypothesis at this point is that result clause constructions and EXCs include the same degree operator, which is different from equative comparatives (although they are phonologically the same in Catalan).

(242)   a. En Pau és **tan** alt que arriba al sostre.
            'Pau is so tall that he reaches the ceiling.'

        b. # En Pau és **tan** alt que pot entrar a casa per la porta.
            'Pau is so tall that he can enter the house through the door.'

Leaving aside for now that EXCs are not declarative clauses, the two following sentences may be considered to have very close meanings as far as the semantics of degree is concerned, given what we have assumed in chapter 3, namely, that *que* is the *wh*-counterpart of *tan*.

(243)   a. En Pau és **tan** alt que m'ha sorprès.
            'Pau is so tall that it surprised me.'

        b. **Que** alt que és en Pau!
            'How tall Pau is!'

As a first approximation, we can add the restriction on the value of d_S and define SO-TAN as follows:

(244)   a. $[\![\text{so-tan}]\!] = \lambda G_{<e,d>}\lambda x[\text{TAN}(G(x))(d_i)]$
            Where the value of i is given by the context and it is always high.

        b. $[\![\text{TAN}(d_R)(d_S)]\!] = 1$ iff $d_R \succeq d_S$

According to this analysis, *so-tan* has the same shape as a true degree morpheme (cf. Kennedy and McNally (2005b) and section 4.1.1.3), since it takes as input a GA construed as a measure function and it returns a property of individuals, which is interpreted as a relation between two degrees. Here, we consider a reference degree (d_R), which consists of the degree of ADJ-ness of an individual, and a standard degree (d_S), which is a free variable whose value is taken from context and which is high. This predicts that *tan* cannot be modified by *very*

(since the GA will not have merged with POS) and it cannot be modified by another true degree morpheme or a scale adjuster, as they only take measure functions of type $< e, d >$ as input. In addition, *tan* cannot modify an intensifier or a true degree morpheme. Also, this analysis correctly describes that the adjective that merges with the operator need not merge with POS, as *very* requires. This can be seen from the following entailment patterns, which parallel the ones presented by Katz (2005):

(245)   a. Que molla que està la tovallola!
          how wet   that is   the towel

          'How wet the towel is!' $\rightarrow$ The towel is wet.

      b. Que seca que està la   tovallola!
          how dry that the towel is

          'How dry the towel is!' $-\!/\!\!\rightarrow$ The towel is dry.

To begin with, *wet* is a minimum standard adjective, since it only requires that an object contain a minimal amount of liquid to be able to say that it is wet. Moreover, since degree modifiers take as argument a GA, which is a measure function of type $< e, d >$, and the result of applying an individual to G always returns a degree (a positive number), the entailment expressed in (245a) is explained: The denotation of EXC that includes *wet* meets the requirement that there be at least a minimal amount of liquid, because the degree operator *tan* requires that d_R be at least a high degree.

As for the second example, *dry* is an instance of maximum standard GA, because to be able to say that an object is dry it has to be completely dry. Since the degree operator does not require that the actual degree of the GA applied to the object be at the extreme end of the scale, the entailment cannot be so strong. We can only be committed to the towel being dry to a degree that exceeds a minimal level of dryness that is defined as the degree that the speaker considers, roughly, higher than expected.

Notice that this is a relevant counter-example for Grimshaw (1979)'s notion of factivity applied to EXCs instantiated in (246a) and (246b).

Recall from chapter 2 that Grimshaw (1979) claimed that EXCs were inherently factive in light of two main facts. She argued that a sentence like (246a) presupposed (246b).

(246)   a. How tall Bill is!

      b. Bill is tall.

But examples like (245b) and like the following one are evidence against the claim that the adjective property is presupposed to hold of its argument in an EXC.

(247)   Que ple que està l'estadi!
        how full that is   the stadium
        'How full the stadium is!'

In the previous example the stadium is not necessarily full. It can be 20% full, 80% full or 100% full. Since we are talking about a soccer stadium, depending on the standards of every speaker with regard to different stadiums, the truth conditions of the example above will vary. Hence, examples with a maximum standard tell us that an EXC can hold at a degree that equals or exceeds a standard that does not necessarily coincide with the standard for ADJ-ness in the context. This not only argues against Grimshaw's idea of factivity for EXCs, but also against the informal characterization of EXCs as denoting high degree. From the previous example we gather that the degree indicated is high with respect to the speaker's expectations, but not necessarily extreme in absolute terms.

However, the description of *tan* as a true degree morpheme triggers some unexpected results: It should be able to modify a scale adjuster, but, interestingly, this is not attested in Catalan.[10]

(248)   a. *Que més alt que és en Pau que en Kareem!
            how   more tall that is the Paul than the Kareem
        b. *Que massa jove que és per veure aquesta pel·lícula!

            how too young that is for tp.see this movie

The explanation for this puzzle must be addressed in future research.

4.1.2.2   Comparison with result clause constructions

In the literature on Catalan, EXCs have never been associated with a degree construction introduced by *tan*; rather, *tan* has been analyzed as introducing a result clause. The so-called *so...that* construction (which translates as *tan...que* in Catalan) has been studied by

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[10]It is attested in English, but only if the comparative is preceded by *much*, an intensifier:

(1)   How much nicer she is now than she used to be!

Meier (2003) and she associates it with other result clause constructions that contain *too* and *enough*. My concern in this section is with previous analyses of result clause constructions. Specifically, I want to examine the denotations of the degree operators and of the complement clause.

So has been analyzed by Meier (2003) as part of the *so...that* construction, along with *too* and *enough*.[11] Her main claim is that the sentential complements of these operators contain modalization, and she proposes an analysis based on the semantics of conditionals (cf. Kratzer (1978)). In particular, she argues that the following pairs of examples are equivalent:

(249)   a. Bertha is old enough to drive a car.

         b. Bertha is old enough *to be able* to drive a car.

(250)   a. The food is too good to throw (it) away.

         b. The food is too good for us *to be allowed* to throw it away.

The fact that the modal expression (*to be able* and *to be allowed*) can be added or omitted with no change in meaning is the reason why Meier proposes that these constructions are implicitly modalized (whenever they are not explicitly modalized). The scheme of her proposal is as follows:

(251) x is adj. *enough/too* adj. + MODAL + p

I will focus on *enough* and *so...that* constructions, which are treated alike by the author in many respects.

To begin with, these operators bear a comparative meaning whose standard of comparison is determined by their sentential complement. The comparison is between the value for which the proposition expressed by the main clause is true (in the example (249a), this is Bertha's actual age) and the standard value[12] determined by a hidden conditional, where the sentential complement supplies the consequent and the main clause, the antecedent. In the previous example, this would be the minimal value of the set of values v that make the conditional *If Bertha is* v-*old, she is able to drive a car* true.

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[11]For other semantic analyses of *too* and *enough*, see also von Stechow et al. (2004); Neeleman et al. (2004); Hacquard (2004) and Hacquard (2005).

[12]It is a critical lower bound for *enough* and *so...that* and a critical upper bound for *too*, as long as we are dealing with positive polarity adjectives. It is the other way around when dealing with negative polarity adjectives.

So her characterization involves a comparison between the actual degree to which a property holds of an individual and a degree that is determined by the clausal dependent. Most importantly, this latter degree is construed as emerging from a hidden conditional.

Meier (2003)'s assumptions regarding the analysis of adjectives are taken from von Stechow (1984b). I will only mention her adjective denotation, which is what matters for the purposes in this section.

(252) $[\![\text{tall}]\!]^g = f : D_{<s,<d,<e,t>>>}$

For any world $w \in W$, extent $e \in D_d$, and entity $a \in D_e$: f is defined if e is a positive extent of the form $< 0, n >$.

If defined, $f(w)(e)(a){=}1$ iff φ_{tall} assigns n to a in w on the scale associated with tallness.

This lexical entry for an adjective is in the line of Heim (2001), with the difference that Meier (2003)'s definition of the adjective is an intension and not an extension. Notice, however, that the author does not mention degrees, but extents. This is the term she uses to refer to degrees as intervals. In addition, she employs the notation $< 0, n >$ to describe the positive polarity of the adjective,[13] which makes reference to 0 being the minimal level and n – a number in the set of positive real numbers plus ∞ – the result of applying G to the individual x, in our parameters.

Returning to the sentential complement of the degree operator, recall that Meier considers the complement clause of *enough, too* and *so* to contain a modal operator. She treats these operators as four-place predicates. They first take a world argument, then a conversational background, afterwards the proposition that is represented by the consequent of an underlying conditional clause (e.g., *Bertha drives a car in* w) , and, finally, the proposition that is expressed by an underlying *if*-clause (e.g., *(if) Bertha is 18 years old in* w). Here is the compositional semantics for the sentential complement, where h refers to a conversational

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[13]Negative polarity is expressed by means of the following notation: $< n, \infty >$. This ordered pair describes the negative extent of an object on a scale

background(cf. Kratzer (1981)).[14][15] which could be spelled out by a prepositional phrase starting with *in view of...* – of type $< s, < p, t >>$ – and p is short for $< s, t >$ (a proposition: The set of worlds that make the sentence true or the function that classifies the worlds into true or false).

(253)
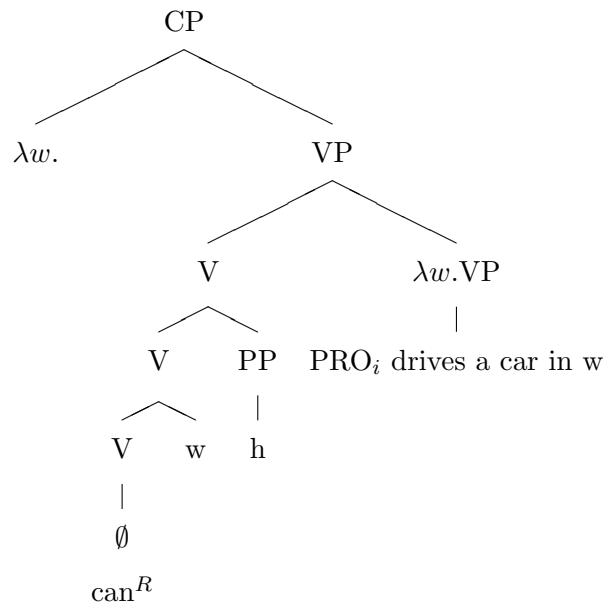
This LF representation intends to map a conditional clause like *If Bertha is 18 years old, she can drive a car*, where the antecedent (which would occupy the specifier position of the higher VP) is not present in the sentential complement, because it is the role of *enough* to supply it. Working bottom-up, the implicit modal first merges with a world variable and then with a suitable conversational background. The third argument is the proposition that hangs from one of the V's sisters, and the fourth one would be the proposition that *enough* supplies.

The main clause *Bertha is old enough* has the following LF representation:[16][17]

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[14]Modals are analyzed as taking as input a set of propositions, sets of worlds that are used to evaluate the actual world. In plain words, they can be paraphrased as *What the law provides* if we are dealing with deontic modality, *What is known* if it is epistemic modality and *What is expected given the laws of nature* if it is circumstantial modality.

[15]The superscript R is just a marker that says that this modal takes two propositional arguments.

[16]Under her account, the degree operators are considered quantifiers and, as such, undergo Quantifier Raising at LF.

[17]The following tree differs from the one that appears in *Natural Language Semantics*, which presumably contains two typos. In particular, the top projection is a DegP instead of CP and two λe occupy two specifiers

(254)

```
                            CP
                   _____
                  /                \
               DegP                 CP
             _____              _____
            /      \            /      \
         Deg'      CP          2        CP
        ____                   λe      _____
       /    \                         /      \
     Deg     @                       λw       IP
      |                                      _____
   enough                                   /      \
                                          NP       …AP
                                           |      _____
                                        Bertha   /      \
                                              SpecAP    A'
                                                t₂     ____
                                                      /    \
                                                e    A      w
                                                     |
                                                    old
```
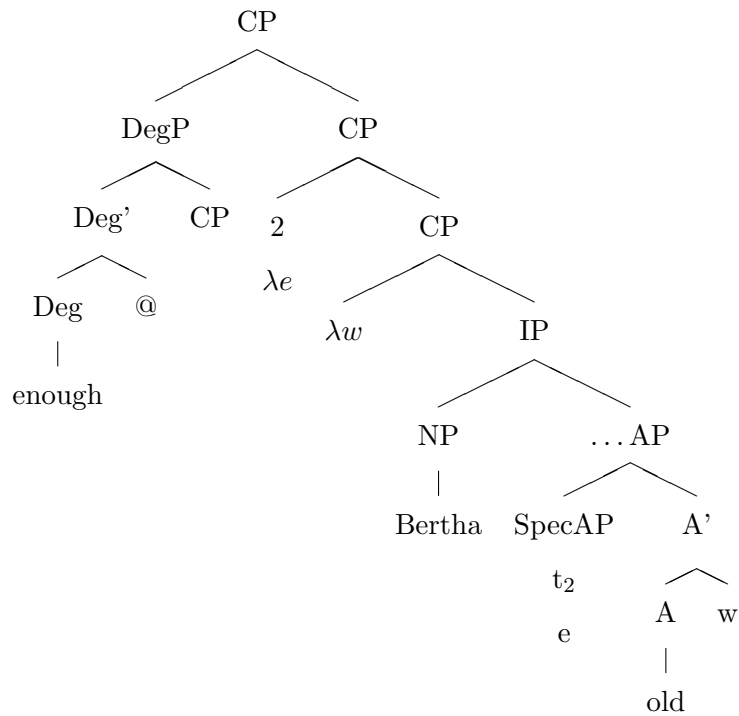
What is relevant in the preceding tree is that Meier (2003) assumes that DegP moves to adjoin to CP as an instance of Quantifier Raising and this movement leaves a trace which is of the form of an extent (of type d) and has an index (here, index 2). This index is interpreted as introducing lambda abstraction on the extent predicate. The empty CP that hangs from DegP is to be supplied by the clausal dependent, and the @ is a free world variable that represents the actual world of utterance.
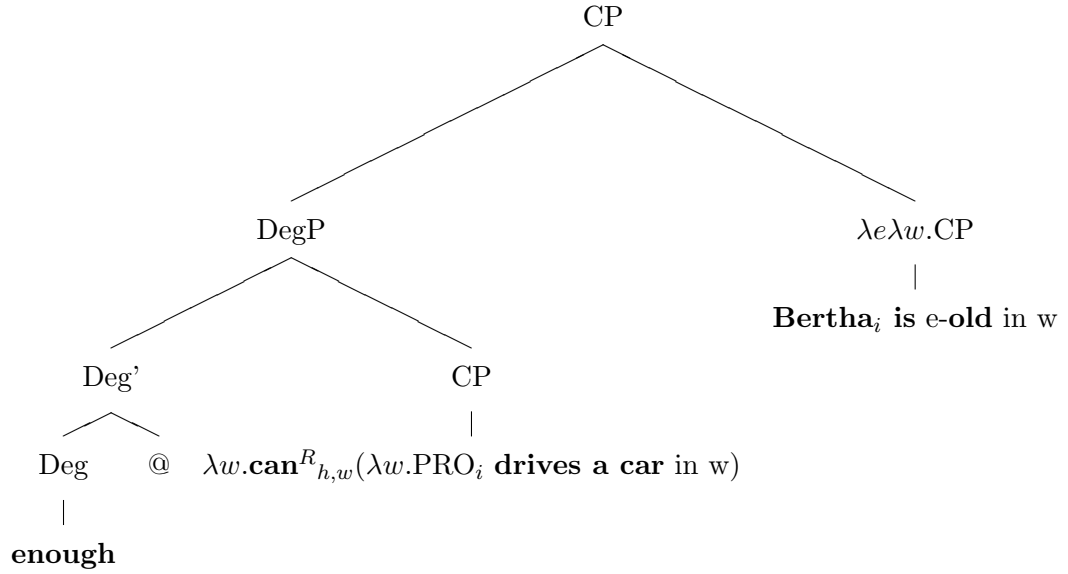
Here is how the two parts merge:

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of C, instead of λe and λw.

(255)

```
                                        CP
                          ╱                         ╲
                    DegP                              λeλw.CP
              ╱            ╲                              │
          Deg'             CP                    Bertha_i is e-old in w
        ╱      ╲            │
     Deg    @    λw.can^R_{h,w}(λw.PRO_i drives a car in w)
      │
    enough
```

This LF representation shows that *enough* is a three place predicate: It first merges with the variable that refers to the actual world @, then with an unsaturated modalized expression (the sentential complement) and, finally, with an extent predicate (the main clause). Meier (2003) considers *enough* to carry out two main functions: On the one hand, it supplies an antecedent for the incomplete conditional that the clausal dependent denotes and, on the other hand, it introduces a suitable comparison relation. This is her proposal of denotation for *enough*, which coincides with *so*:

(256) $\llbracket enough \rrbracket = \llbracket so \rrbracket = f : D_{<s,<<s,<p,t>>,<<d,p>,t>>>}$
        For all $w \in W$, $Q \in D_{<s,<p,t>>}$ and $P \in D_{<d,p>}$:
        $f(w)(Q)(P)=1$ iff
        $\text{MAX}(\lambda e.P(e)(w) \succeq \text{MIN}(\lambda e^*.Q(w)(P(e^*)))$

The three arguments can be identified as s for the actual world, Q for the sentential complement and P for the extent predicate. Roughly, what this formula states is that there is an equative relation between two extents, one is a minimal level determined by the sentential complement (the denotation of Q) and the other one is the actual degree to which a property holds of an individual (the denotation of P). This is exactly the result that we were looking for at the beginning.

At this point, *enough* and *so* are considered to have the same denotation. But Meier (2003) does not claim that in a sentence like *Pau is so tall that he reaches the ceiling*, there

is only one world in the conversational background that makes the sentence *Pau reaches the ceiling* true (which would be the meaning of the possibility modal). On the contrary, every world in the conversational background is such that Pau reaches the ceiling. As a result, the author claims that the *so...that* construction is inherently modalized with a universal quantifier (and, hence, the necessity modal instead of the possibility modal, which is represented by the existential quantifier). That is, *enough* is not inherently modalized, depending on the context, its sentential complement can include a universal quantifier or an existential quantifier, whereas *so*'s sentential complement always takes the universal one. Consequently, *enough* and *so* are only exchangeable when there is an explicit modalization; then the *that*-clause can acquire the modal that the sentential complement includes. As a result, *enough* and *so* are expected to mean the same in cases like (257). (From (Meier, 2003, 97))

(257)   a. The jet flies fast enough to beat the speed record

        b. The jet flies so fast that it can beat the speed record

        c. "The e such that the jet flies e-fast $\succeq$ the minimal e^* such that, if the jet flies e^*-fast, it can beat the speed record, given what we know."

Recapitulating, this modalized approach to *so* proposes that a degree word like *so* establishes a $\succeq$ relation between two degrees. In particular, between the actual degree of ADJ-ness applied to an individual, and a standard provided by a (necessity) modalized complement clause.

There are a few issues that Meier (2003) does not take into account in order to characterize *so...that* constructions. First, she overlooks an important restriction on the denotation of *tan*, namely that the standard degree must be high. Second, the Catalan morphology does not indicate that the *that*-clause in the *so...that* construction is inherently modalized. I want to pay attention to all of these issues, in order to capture the behavior of *so* in the *so...that* construction, and by extension, that of *tan* in result clause constructions and EXCs. Third, the *that*-clause in the *so...that* construction is always realized, contrary to the sentential complements of the other two result clause constructions. And, finally, whereas negation can scope over the whole construction in *enough* and *too* constructions, it is more restricted in the *so...that* construction.

With regard to the first question, the standard value is established by a conditional clause that underlies the sentential complement. That is, the denotation of d_S is given by the result

clause. Interestingly, Meier does not mention whether the degree of ADJ-ness that holds of an individual must be high. Since this property is not represented in the denotation of *so*, nothing explains the following contrast:

(258)   a. Bertha is old enough to drive a car

         b. Bertha is old enough to be able to drive a car

(259)   # Bertha is so old that she drives a car

(260)   # Bertha is so old that she can drive a car

Realize that this contrast is not due to the choice of the modal (since in both cases it is the possibility modal). It simply is a fact that the standard in the *so...that* construction must be high.

This is not the only property that differentiates the *enough*-construction and the *so...that* construction and that is not explained under an account which identifies the two degree operators. Characteristically, a result clause selected by *tan* is a finite clause in the indicative mood. This goes against the assumption that the sentential complement is a modalized clause, since subjunctive mood and non-finiteness would have this modalizing effect, and not indicative mood and finiteness. Also, the proposition the *that*-clause denotes is always actualized, which does not follow from Meier's analysis.

(261)   La Sydney és tan llesta que va recuperar el giroscopi.
        'Sydney is so smart that she recovered the gyroscope.'

The previous sentence states that Sydney actually recovered the gyroscope because she was very smart. It is not that she was able to do so, but that she did it. To capture this property, I make use of a biconditional relation ($\leftrightarrow$), which states that there are two propositions (Sydney is very smart and Sydney recovers the gyroscope) and whenever one is true, the other one must also be true:

(262) $[\![\text{so-tan}]\!]^w = \lambda p \lambda G_{<e,d>} \lambda x [\text{TAN}(G(x))(d_i)] \leftrightarrow [p(w) = 1]$
        Where the value of i is given by the context and it is always high.

This is inspired by Hacquard (2004) and Hacquard (2005), which claim that the implicative reading (i.e., the need for the proposition to be actualized) is the basic one for *too* and *enough*,

and the non-implicative reading is the derived one. She works with data from French and analyzes the implications of the sentential complements depending on the aspect of the verb. (Note that French, like Catalan, has a perfective past tense – the *passé composé* – and an imperfective past tense – the *imparfait*). The data from French show that whenever there is *passé composé* there is an implicative reading (263b), but when there is *imparfait* (263a), then the reading is non-implicative.

(263)   Examples (3a) and (4a) from Hacquard (2005)

      a.   Jean était assez rapide pour s'enfuir (mais il ne s'est pas enfui)

         'Jean was-**impf** quick enough to escape (but he didn't escape).'

      b.   Jean a été assez rapide pour s'enfuir (# mais il ne s'est pas enfui)

         'Jean was-**pfv** quick enough to escape (# but he didn't escape).'

In effect, (263a) gives rise to a non-implicative reading (in the sense of Karttunen (1971)[18]).

Implicatures can be canceled, so the fact that (263b) cannot be canceled suggests that the implicative reading is grammatically encoded. That is why Hacquard's main claim is that these constructions are at base implicative, but the non-implicative meaning can appear when there is a genericity operator, whose presence surfaces with imperfective morphology.

To account for the implicative nature of these operators, Hacquard proposes to make sure that the conditions that have to be met in order to make the sentence true are not only sufficient, but also necessary. She imposes this condition on the degree that quantifies as *enough*, as follows:

(264) $\iota d : \forall w' \in Acc(w).$J. is d-quick in $w' \leftrightarrow$ J. escapes in w'

Based on this idea, the denotation of *enough* is that of a function with three arguments. First, it takes a gradable predicate P ($< d, < e, < s, t >>>$), a proposition Q ($< s, t >$) and an individual x ($< e >$). Then we apply the condition above and we obtain the following:

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[18]Predicates are said to be implicative if they entail the actuality of their complement when affirmative and its negation when negated.

(1)   Example (8) form Hacquard (2005)

   a. Jean managed to kiss Mary → Jean kissed Mary

   b. Jean didn't manage to kiss Mary → John didn't kiss Mary

(265) $\llbracket \text{enough} \rrbracket = \lambda P_{dest} \lambda Q_{st} \lambda x.P(\iota d : \forall w' \in \text{Acc}(w).Q(w') \leftrightarrow P(d)(x)(w'))(x)(w)$

This needs to be explained in two parts. First, a degree is described as follows: There is a single degree d such that every accessible world w' (which is the same as every world in the conversational background or in the modal base above) makes the sentential complement true iff there is a gradable predicate that is applied to w', to an individual x and to d and comes out true. The second part is what makes sure that the degree operator gives out 1. It consists of applying the predicate to the actual world w, the individual x and the degree described in the first part. Roughly, this amounts to saying that Jean escapes only if Jean has the required degree of quickness.

There is a last interesting remark in the derivation of the implicative reading of the *too* and *enough* constructions. Hacquard assumes that a sentence like (263b) – repeated in (266) for ease of presentation – contains an assertion ((267a)) and a presupposition ((267b)):

(266)   Jean a été assez rapide pour s'enfuir

(267)   a. J. had **the** degree of quickness sufficient & necessary for him to escape

        b. $\llbracket \text{quick} \rrbracket(\iota d : \forall w \in Acc(w*).\text{J. escapes in } w \leftrightarrow \text{J. is } d\text{-quick in } w)(J)(w*)$[19]

        (i.e., there is a degree of quickness sufficient & necessary for him to escape.)

The implicative readings are derived by Modus Ponens: The presupposition in (267b) yields premise number 1 and the assertion in (267a) yields premise number 2. The inference follows from these two premises.

(268)   a. Premise 1: In all accessible worlds w, if Jean is d-quick in w, Jean escaped in w

        b. Premise 2: Jean was d-quick in $w*$

        c. Inference: Jean escaped in $w*$

Although I claim that the *that*-clause in the *so...that* construction has an implicative reading, what is interesting is that this sentential complement cannot have a non-implicative reading. Additionally, the appropriate interpretation cannot be derived by the procedure

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[19]The denotation of *quick* adopted by Hacquard (2005) is the following:

(1) $\llbracket \textbf{quick} \rrbracket = \lambda d.\lambda x.\text{QUICK}(x) \succeq d$

sketched in (268). That is, the implicative reading is not an inference from a presupposition and an assertion. Rather, the whole content of the *that*-clause must be true. To see this, let us move on to another property that characterizes *so...that* constructions, but not *enough*-constructions: The latter does not exhibit any constraints with regard to negation ((269)), while the former can only be negated when the *that*-clause makes reference to a state (and not an event) and the whole sentence has a contrastive-focus reading ((270)).

(269)   Bertha is not old enough to drive a car

(270)   a. *La Sydney no és tan llesta que va recuperar el giroscopi.

            'Sydney isn't so smart that she recovered the gyroscope.'

         b. En Pau no és tan alt que arriba al sostre. És d'una alçada normal.

            'Pau is not so tall that he reaches the ceiling. He's of average height.'

In the case of *enough*, wide scope negation not only implies that some individual does not reach the minimal level d, but also that the event that the sentential complement describes is not actualized. This is not possible for *so...that*, though. The fact that the construction cannot be negated (when the sentential complement denotes an event) suggests that the *that*-clause denotes a proposition that is always true if the main clause is true.

In contrast, when the *that*-clause does not denote an event, but can be interpreted as a property that holds of an individual, in conjunction with *tan*, then negation is not completely unacceptable. The effect it has is reminiscent of the following cases:

(271)   Spanish data from González (2005)

         a. Sus alumnos (*no) son   *rematadamente* tontos.
            his pupils   NEG   are.they terribly   dumb
            'His students are (*not) terribly dumb.'

         b. Sergio (*no) es *super*sensible.
            Sergio NEG   is super.sensitive
            'Sergio is (*not) super sensitive.'

         c. Su novio   (*no) es *extremadamente* dicharachero.
            her boyfriend NEG   is extremely   talkative
            'Her boyfriend is (*not) extremely talkative.'

These are examples of high degree denoting expressions. Typically, they are ruled out under negation, but they are interpretable under a contrastive-focus reading.

(272) Sus alumnos no   son   rematadamente tontos. Son   tan tontos como la
       his pupils   NEG are.they terribly   dumb are.they as dumb as   the
       mayoría de estudiantes.
       majority of students

       'His students are not terribly dumb. They are as dumb as the majority of students.'

Recapitulating, I have shown that identifying *enough* with *so...that* as Meier (2003) did does not give the desired results. More specifically, it cannot account for a number of properties:

(273) a. The degree of ADJ-ness that holds of an individual must be high in *so...that*, but
          not in *enough*

       b. The *that*-clause in the *so...that* construction has a finite verb in the indicative
          mood in Catalan, which suggests that there is no underlying modal in it, contrary
          to the sentential complement in *enough*-construction, which contains a non-finite
          verb.

       c. The proposition denoted by the sentential clause must be actualized in *so...that*,
          whereas the implicative reading for *enough* depends on the aspect of the verb
          (perfective vs. imperfective).

       d. Negation can scope over the *so...that*-construction in very specific contexts, while
          it can always scope over the *enough*-construction.

4.1.2.3 *Tan* as a polarity sensitive item

Up to now the parallel between *so...that* and EXCs was the working hypothesis, because in both cases the degree operator *tan* occurred and the degree to which a predicate held of an individual was necessarily high. However, the formulation in the preceding subsection does not explain why *so-tan* does not occur in affirmative contexts just like the other degree operators. In other words, why the *that*-clause has to appear to license *tan*. From the formula given above nothing should prevent *tan* from occurring in a declarative clause just like an absolute construction ((274a)) or other degree constructions ((274b)), ((274c)) or ((274d)).

(274) a. En Pau és alt.
          'Pau is tall.'

    b. En Pau és **més** alt.

       'Pau is taller.'

    c. En Pau és **massa** alt.

       'Pau is too tall.'

    d. En Pau és **prou** alt.

       'Pau is tall enough.'

    e. *En Pau és **tan** alt.

       'Pau is so tall.'

It seems as if in every other degree construction, d_S can be recovered from context, either when it is a free variable (as in the absolute construction) or when it is realized as a sentential complement (as in the comparative, and *too* and *enough*).

It is time to explore the distribution and meaning of *so-tan* (from now on, simply *tan*) in non-exclamative environments and try to characterize the contexts of appearance. Here are some examples:

(275)   a. La Sydney no   és tan forta.
        the Sydney NEG is so   strong

        'Sydney is not so strong.'

    b. Si la   Sydney és tan forta,   aleshores sobreviurà.
       if the Sydney is so   strong, then   survive.FUT.she

       'If Sydney is so strong, then she will survive.'

    c. Dubto   que la   Sydney sigui   tan forta.
       doubt.I that the Sydney is.SUB so   strong

       'I doubt that Sydney is so strong.'

    d. La Sydney va   refusar   de ser   tan desagradable.
       the Sydney .aux.she to.refuse of to.be so   unpleasant

       'Sydney refused to be so unpleasant.'

    e. Sense   ser   tan forta, la Sydney no   ho hauria   aconseguit.
       without to.be so   strong, the Sydney NEG CL AUX.would.have managed

       'Without being so strong, Sydney wouldn't have made it.'

    f. La Sydney és tan forta?
       the Sydney is so   strong

       'Is Sydney so strong?'

g. Per què és tan forta, la   Sydney?
   why   is so   strong the Sydney
   'Why is Sydney so strong?'

h. M'alegro   que la Sydney sigui   tan forta.
   me.am.pleased that the Sydney is.SUB so   strong
   'I'm glad that Sydney is so strong.'

The sentences in (275) depict a scenario that is reminiscent of other licensing environments, namely, the contexts that license negative polarity items (henceforth NPIs) like *any*. In particular, the first set of examples are instantiations of downward entailing (henceforth DE) contexts (Fauconnier, 1975; Ladusaw, 1979): Negation, *if*-clauses, adversative predicates and *without*-clauses. And the second set of examples include contexts that are not DE, but, still, they license NPIs, such as interrogatives (yes/no questions are not DE and *wh*-questions are only DE in their left argument) and emotive factives.

(276)   a. I didn't see anyone at the party.

        b. If you see anyone at the party, tell them to wait.

        c. I refused to see anyone.

        d. She left the party without seeing anyone.

(277)   a. Have you seen anyone at the party?

        b. Who saw anyone at the party?

        c. John was surprised that anyone came. (from Fitzpatrick (2005))

In contrast, the following context, which does not license *any*, does not license *tan*, either.

(278)   *I believe I didn't see anyone at the party.

(279)   *Crec   que la Sydney és   tan forta.
        believe.I that the Sydney is.SUB so   strong
        'I believe that Sydney is so strong.'

The example in (279) illustrates that a propositional attitude verb normally cannot select for a sentence that contains *tan*. However, it can if it includes negation as part of its meaning. For example: *I doubt that Sydney is so strong.* Since *doubt* can be interpreted as NOT *believe*, the presence of negation makes it possible for *tan* to occur.

What (280) shows is that not every kind of factive predicate licenses a sentence that includes *tan*. Particularly, in these examples, cognitive factives (which oppose *emotive* factives) are unable to license the degree word. But this is not surprising, since the same contexts that are unable to license *tan* are unable to license *any*.

(280)   a. *Sé   que la Sydney és tan forta
            know.I that the Sydney is so   strong
            'I know that Sydney is so strong.'

        b. *M'he   adonat que la Sydney és tan forta
            me.AUX.I realized that the Sydney is so   strong
            'I realized that Sydney is so strong.'

(281)   a. *I know that I have seen any gorillas in the zoo

        b. *I have realized that I have seen any gorillas in the zoo

Finally, *tan* is licensed when it occurs inside a DP headed by the indefinite determiner *un* in the restriction of a generic or universal operator, which also is a DE-context.

(282)   a. Un nen tan gran no   plora per bestieses
            a boy so big NEG cries for silly little things

            '(lit.) A boy so big does not cry over stupid little things.'

        b. *He   vist un nen tan gran
            AUX.I seen a   boy so big

        c. Una nena tan responsable sempre porta els   deures   fets
            a   girl so responsible always brings the.PL homework done

            '(lit.) A girl so responsible always does her homework.'

        d. *Una nena tan responsable és aquella que sempre porta els   deures   fets
            a   girl so responsible is that   that always brings the.PL homework done

The same could be said of examples introduced by *quan* in the generic present tense:

(283)   Això és el que passa   quan s'és tan prepotent.
        this is the that happens when CL is so   arrogant

        'This is what happens when one is so arrogant.'

As expected, *any* is also licensed in the restriction of a generic operator ((284)), which confirms the proposed idea that *tan* is licensed in the very same contexts as *any*.

(284)   A boy with any sense doesn't cry over stupid little things.

Interestingly, the literature on NPIs (Kadmon and Landman (1993); Krifka (1995); Lahiri (1998) and more recently Chierchia (2004, 2005b)), in trying to provide some insights into this rather descriptive concept of DE-ness (i.e., the capacity to license inferences from sets to subsets), has come to link NPIs and scalar implicatures (henceforth SIs) with domain widening (henceforth DW).[20]

Roughly, Chierchia (2004) points out that the contexts that give rise to scalar implicatures (henceforth SI) are related to the contexts that license NPIs. Horn (1989) had already suggested that SIs were suspended not only under negation, but more generally in DE contexts, but Chierchia takes this a step further: He highlights that SIs are not suspended in DE contexts, but, rather, they are recalibrated.

SIs arise whenever an expression can be thought of as being part of an informational scale with the following property: If the item I occurs to the right of an item I^+, then the sentence containing I entails the sentence including I^+. Let me illustrate this. Imagine a positive quantifier scale of this sort: some $\prec$ many $\prec$ most $\prec$ every.

(285)   a.   **Many** students write a dissertation → **Some** students write a dissertation

         b.   **Every** student writes a dissertation → **Many** students write a dissertation

Horn makes a generalization in the line of Grice's conversational maxims, which states:

(286) $\alpha \prec \beta$ ("α is informationally weaker than β") $=_{def}$ β (asymmetrically) entails α

If we apply the preceding definition to the scale mentioned above, we can say, for instance, that *many* is informationally weaker than *most* or *every*, but it is informationally stronger than *some*. (Chierchia, 2005b, 13) makes a more general claim along the same lines – and which is reminiscent of the specificity principle that applies to phonology (X. Villalba, p.c.):

(287)   In enriching a meaning, accord preference to the strong option (if there is nothing in the context/common ground that prevents it)

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[20]Recall from chapter 2 that Zanuttini and Portner (2003) and Portner and Zanuttini (2005a) also employ the term *widening*. As shall be seen, though, they borrow the term and the spirit, but not all the properties as stated by Kadmon and Landman (1993). I will employ DW to refer to the latter authors' term, and *widening*, with no qualification, to refer to the former authors' term.

Gazdar (1979) showed that the SIs presented here were suspended under negation, as the following example from (Chierchia, 2004, 9) illustrates:

(288)   a. It's false that Sue harassed some students.

   b. It's false that Sue harassed some but not all the students.

   c. It does not follow that Sue harassed all the students.

In a positive context, *some* entails *not all*. Chierchia argues that if the implicature associated with *some* is added in locally, together with its meaning, then the result would be (288b), which would amount to saying (288c), but this does not follow. This is an example that shows that SIs are suspended under negation. However, a closer look reveals some interesting facts. First, it is not only negation, but the contexts that license *any* that have this effect on SIs ((289)). And, second, SIs are not suspended, but recalibrated ((290)).

(289)   From (Chierchia, 2004, 11)

   a. If Paul or Bill come, Mary will be upset.

   b. It does not follow that if Paul and Bill both come, Mary won't be.

   c. If Paul comes, Mary or Sue will be upset.

The scale associated with *or* is one in which *or* implicates *not both* (*not both* $\prec$ *or*). In the example above, in positive contexts, (289a) would implicate that Mary will be upset if one or the other comes, but not both (following the expected SI). However, this is not so, as becomes clear from example (289b). That is, if the SI were not suspended, then (289b) would follow from (289a), but this is not the case, which accords with the claim that SIs are sensitive to DE contexts.

Now, Chierchia (2004)'s claim is that, in these contexts, quantifiers on a scale create new implicatures, where the entailment pattern is reversed:

(290)   From Chierchia (2004)

   a. In this class, no one read many papers (from the reading list) → Someone read some papers

   b. No students read many papers. #(In fact/actually) no student read any paper

   c. {No student read some paper, no student read many papers, no student read every paper }

(290a) shows how, under a DE context, there is still an implicature, namely: *no many* → *some*. When one wants to remove a SI, the use of *actually, in fact* is a necessary means to point it out. But as we observe in (290b), the implicature that arises from the clause in the left cannot be canceled, which suggests that the implicature is not *not many* → *not any*, as would be in a positive context. In (290c) we see the set of alternatives that arise by the use of a scalar item. In such a case – in which they are under the effect of DE-ness – , the entailment (i.e., the informational strength) goes from left to right: Not reading some papers entails not reading many papers, which in turn implies not reading every paper. These are the alternatives at stake, and when the speaker utters one of them, he/she seeks to be maximally informative. Hence, if he/she says *No student read many papers*, this entails that no student read some paper. Realize that, negating one item entails the negation of the stronger items on the scale.

So far we have observed that SIs permit strengthening (i.e., a gain in information), but this notion of strengthening is context dependent. More specifically, what is a gain in information in a positive context becomes a loss in a DE-context, because DE-ness reverses the entailment relations among the items on a scale. That is how Chierchia (2004) establishes a relation between SIs and NPIs: If NPIs are employed in DE contexts, it is because they are maximally informative, because they entail weaker items. But what are these items? Typically, NPIs are not part of an ordered set of quantificational items like *many* or *some*, but, as **?**, Krifka (1995) and Lahiri (1998) put it, the semantics of NPIs involves the comparison among relevant alternatives. For this, Chierchia refers to Krifka (1995), who argues that every sentence, when it is added in a context, is considered against the background of a relevant set of alternatives:

(291)   From (Chierchia, 2004, 4)

   a. John earns $200 an hour

   b. earn (j, $200) (in the "at least" sense)

   c. {... earn (j, $100), ... , earn (j, $300), earn (j, $400) ...}
      entailment: ←

The truth-conditional interpretation of the sentence in (291a) is given in (291b), and, below, the set of alternatives and the direction of the entailment. Of course, if John earns (at least) $200 an hour, he will also earn $100 an hour.

According to Chierchia, an NPI like *any* is compared to a stronger competitor in positive contexts, which becomes weaker in DE contexts: The indefinite quantifier *a*. The strength of these items is based on the quantificational domain that each quantifier is associated with (Kadmon and Landman, 1993). For example, when one utters *There is an exhibition that I have really liked*, the utterer means *an exhibition in D*, where D can be translated as *Barcelona, my neighborhood, the art museum*, etc. Interestingly, Kadmon and Landman (1993) argue that the semantics of NPIs include the instruction to consider domains of individuals broader than what one could have otherwise considered. That is why the authors claim that NPIs involve *Domain Widening*. To illustrate this, in a sentence like *A student asked for help*, it is not probable that the speaker refers to any student in the world, but rather he/she refers to a student in a domain that is salient in the context of use. This is expressed with a subscript D. On the other hand, Kadmon and Landman (1993) propose that *any student* contains a widened domain of quantification, namely, $D+$:

(292)   a. A student$_D$

   b. Any student$_{D+}$
      where D$\subseteq$ D$^+$

At this point, nothing has been said to account for NPIs' unacceptability in non DE contexts, where the plain indefinite (*a* in this case) would be perfectly grammatical. The main claim is that the use of NPIs in positive contexts triggers a loss of information. But the reversing of entailments that underlies DE contexts manages to flip the situation and then, NPIs become maximally informative. In Chierchia (2004)'s terms, there is an increasing function from sets into sets (i.e., for any set D, g(D) $\supseteq$ D), such that:

(293) $\exists_D x[\phi]$ entails $\exists_{g(D)} x[\phi]$
      Where D is a quantificational domain.

In other words, saying that a student came in is more specific and, thus, more informative than saying the same but adding a broader domain (that is exactly what NPIs do). Consequently, the use of an NPI is banned in these contexts: Since *a* and *any* are semantically identical except for DW, the most relevant means of conveying a meaning is the more specifically constrained one.

Nevertheless, under negation, the entailment patterns are reversed:

(294) $\neg \exists g_{(D)} x[\phi]$ entails $\neg \exists_D x[\phi]$

In this context, *any* becomes stronger and, thus, more informative, than its plain existential counterpart:

(295)   From Chierchia (2004)

    a. There isn't any student that doesn't know me.

    b. There isn't a student that doesn't know me.

In (295a) the meaning that is being conveyed is that there is no student of any kind (new, old, international, local, etc.) that does not know me, which entails (295b) (the fact that there is some student that does not know me). In this context, DW triggers strengthening of informativeness and that is what licenses NPIs in DE environments.

Of course, there are a few differences between the inferences generated by NPIs and those attributable to SIs. I will mention two: First, alternatives in scalar elements form scales, while in NPIs they form domains of comparison (determined by $g_{(D)}$ in the examples above). And second, SIs may fail to arise, but a quantifier that induces a SI is not subject to licensing conditions. In contrast, an NPI in a positive context – where it would not be maximally informative – is ungrammatical. Chierchia (2005b) proposes that there is a null DE operator σ that freezes implicatures. Once σ applies to a constituent, the implicature becomes part of its meaning and hence cannot be removed or recalibrated. This operator is associated with the features $[+\sigma]$ and $[-\sigma]$. They are part of scalar items (which NPIs are claimed to under this recursive pragmatics approach) and need to be checked under the scope of σ. An NPI is of type $[+\sigma]$ and thus it has active alternatives that must arise, so σ has to check its feature. On the other hand, a scalar item such as *many* is of type $[-\sigma]$, which means that even though there is no σ in its scope, its presence will not yield ungrammaticality (although the SI might be removed).

Coming back to our main concern, *tan* is not part of an ordered set of quantificational items, but in order for a sentence containing *tan* to be grammatical, it has to occur in a DE-context. This suggests that it is a polarity sensitive item (henceforth PSI).

I will adopt the spirit of Chierchia's proposal and claim that *tan* is only licensed when it is more informative than its competitor, but I will not commit myself to saying that it contains a quantificational domain or that it involves DW. I make the hypothesis that its

competitor may be *així de* ('this'), another deictic degree operator that involves an equative relation between d_R and d_S, and which can occupy the position of *tan* in positive contexts.

Roughly, the semantics of *així de* states that some individual is at least as ADJ as some degree that is described in the context of utterance by referring to it deictically.

(296) $[\![\text{així de}]\!] = \lambda G_{<e,d>}\lambda x.G(x) = d_i$

Where d_i is a standard that the speaker indicates, either by physically showing the exact measure or by referring to some salient measure in the context of utterance.

Just like *tan*, *així de* is a true degree morpheme that merges directly with a GA (a measure function) and it returns a property of individuals, which is interpreted as a relation between two degrees. However, the two operators differ in important respects: Realize that the relation described between d_R and d_S does not include $\succ$ as in the denotation of *tan*. This assumption derives from the analysis of the following data:

(297)   (a 1,80 m) En Pau no és així d'alt. $-/\!/\rightarrow$ It is not the case that Pau is 1.90 m
        '(at 1.80 m) Pau is not this tall.'

That is, negating $\succeq$, as in the case of *tan*, entails $\prec$, but (297) shows this is not the case for *així de*. Instead, negating $=$ entails both $\prec$ and $\succ$, which depicts the behavior illustrated in the preceding example. Moreover, d_S in *així de* need not indicate high degree, which is a property of the denotation of *tan*. Additionally, there are a few contexts in which *tan* is acceptable but not *així de*, which is not predicted by this analysis. For example, in EXCs: *Quin noi tan alt!* ('What a tall boy!') vs. **Quin noi així d'alt!*. These facts suggest that the two competitors do not share as many semantic properties as *a* and *any*, which are claimed to differ only in the fact that *any* involves DW.

However, I will make use of examples containing *així de* to show that informativity may play a role in the licensing of *tan*, along the lines suggested by Chierchia (2004) and Chierchia (2005b). Consider (298):

(298)   a. En Pau és **així d'**alt.
           'Pau is this tall.'

        b. *En Pau és **tan** alt.
           '*Pau is so tall.'

In a positive context, *així de* makes reference to an exact degree of ADJ-ness applied to an individual, which is salient in the context of use. Since the relation it establishes between d_R and d_S is =, the use of *així de* is more informative than the use of *tan*, which involves the $\succeq$ relation. This makes the former informatively stronger than the latter. But in a negative context, entailments are reversed, so *tan* is supposed to be acceptable because the alternatives that it eliminates are stronger:

(299)   a. En Pau no és així d'alt.
             'Pau is not this tall.'

         b. En Pau no és tan alt.
             'Pau is not so tall.'

From these examples we realize that negating $\succeq$ entails $\prec$, whereas negating = entails both $\prec$ and $\succ$. In other words, *tan* is more informative in DE contexts than *així de*. Actually, when a speaker utters (299b) the minimal level that is not reached is a high level that is salient in the discourse of utterance. For instance, if the speakers are discussing about basketball players and a team needs someone who is at least 2 meters tall, one could utter (299b).

What is most interesting about applying a theory of NPIs to *tan* is that we can account for the restrictions on the occurrence of *tan* and we can generalize a denotation for all the instances of *tan* (not only result clause constructions and EXCs).

To sum up, in this section I have considered other data that did not seem relevant when the obvious analogy was made between EXCs and result clause constructions. The trigger of this new approach has been the fact that *tan* was unable to occur in most positive contexts. The analysis of the contexts in which it was available has brought us to DE-ness, which also licenses NPIs. From this moment on, a parallel has been established between NPIs and *tan* construed as a PSI, in accordance with recent works on the semantics of such items, which treat NPIs as items that are only licensed whenever they are more informative than their non-PSI competitor. In the case of *tan*, I have proposed *així de* ('this') as a possible competitor. They both share the fact that they are deictic true degree morphemes that establish an equative relation between d_R and d_S, but *així de* can occur in positive contexts, where *tan* is not allowed to occur.

4.1.2.4   Licensing of *tan* in an exclamative

In view of the new analysis of *tan* as a PSI, it is time to evaluate in what way this affects the denotation of *tan* in EXCs. As a matter of fact, one of the strong points of this approach is that it aims to cover the meaning of all the occurrences of *tan* at once. The important matter is how to justify that the context of appearance of an EXC is DE or at least eligible as a *tan* licensor.

A context is DE if it licenses an inference from a set to its subsets. In the case of generalized quantifiers (such as determiners), DE-ness leads to strengthening – i.e., the use of NPIs in these contexts gives rise to a gain in information. In the examples that have been discussed so far, strengthening was the result of applying negation, which would reverse entailments. What I will propose here is that the speaker's attitude towards the actual degree of ADJ-ness that holds of an individual also reverses the entailments associated with degrees.

First, we do not want to consider a gradable property P as the set of individuals who have P at least to degree *d*. To understand the effect that DE-ness and EXCs have on the meaning of *tan*, we want to consider a gradable property P from the viewpoint of the entailments associated with degrees.

(300)   *x* is 2 meters tall → *x* is 1.80 meters tall

Here is a concrete situation:

(301)   a. Pau is 2 meters tall → Pau is 1.80 meters tall

         b. Kareem is 1.80 meters tall –//→ Kareem is 2 meters tall

Clearly, this scenario derives from the monotonicity associated with GAs. Recall how monotonicity was defined in (2) above:

(302)   A function of type $< e, d >$ is monotone iff $\forall x \forall d \forall d'[f(x) \succeq d \land d' \prec d \to f(x) \succeq d']$

Hence, entailments from higher degrees to lower degrees are the logical consequence of the nature of GAs. I want to propose that licensing of PSIs is not only contingent on the reversal of inferences from sets → subsets to subsets → sets (as DE-ness had been defined so far), but rather what matters is that there be a reversal of the entailment patterns that are usually associated with an item in positive contexts. I want to claim that EXCs involve a reversal of

the entailments that are intrinsically associated with degrees in a similar vein that negation does. Observe the following parallelism:

(303) a. (Kareem is 1.80 meters tall) Pau is not so tall. → (Kareem is 2 meters tall) Pau is not so tall.

   b. (Kareem is 2 meters tall) Pau is not so tall. -//→ (Kareem is 1.80 meters tall) Pau is not so tall.

That is, if we can truthfully say *Pau is not so tall* when he is 1.80 meters tall, we will be able to say so truthfully if he is 2 meters tall as well. In contrast, if we can truthfully say *Pau is not so tall* when he is 2 meters tall, we may not be able to say truthfully *Pau is not so tall* if he is 1.80 meters tall.

(304) a. (Pau is 1.80 meters tall) How tall Pau is! → (Pau is 2 meters tall) How tall Pau is!

   b. (Pau is 2 meters tall) How tall Pau is! –//→ (Pau is 1.80 meters tall) How tall Pau is!

In the same way, if we can utter *How tall Pau is!* when he is 1.8o meters tall, we will be able to utter this clause when he is 2 meters tall, but this is not necessarily so the other way around. In other words, if we can utter *How tall Pau is!* when he is 2 meters tall, we may not be in a position to utter this clause if he is 1.80 meters tall.

Realize that both when *tan* is licensed in a prototypical DE context ((303)) and in an EXC ((304)), the entailment patterns go from lower degrees to higher degrees, which goes against the monotonicity associated with GAs. Hence, if an individual is a-tall and another individual is b-tall, where $a \succ b$, then holding an attitude towards b will entail holding an attitude towards a. An even more general claim could be spelled out as follows:

(305) Licensing of PSIs

   Where the x and y are variables and f is the function that applies to the variables

   a. $x \rightarrow y$

   b. $f(y) \rightarrow f(x)$

In the particular example above, the variables would be the propositions that contain the gradable property **tall**, and the function, the attitude towards degrees that is applied to

this property. The hypothesis here is that attitude toward degrees involves such a reversal, because two monotonicity effects interact: On the one hand, the downward monotonicity that characterizes GAs (as depicted in (302)); and, on the other hand, the upward monotonicity that characterizes ATD (as depicted in (235) and repeated below for convenience).

(306) $[\![\text{surprisingly}]\!] = \lambda P_{<e,d>}\lambda x_e.\exists d[P(x) = d \wedge \forall d'[d' R_P d \rightarrow \text{surprising}(^{\wedge}[P(x) = d'])]]$

To summarize, if Pau is d-tall, then if $d' \preceq d$, Pau is also d'-tall. But if the speaker has an attitude towards Pau's tallness at d'-tall, he surely has an attitude towards Pau's tallness at d-tall. But if Pau is d''-tall and $d' \succ d''$, then the speaker does not necessarily experience an attitude towards the degree of tallness d''.

As shall be seen in chapter 5, the main difference between constructions that contain ATD modifiers (see section 4.1.1.4) and EXCs is that, in the former, an attitude is asserted by means of an adverb, whereas in the latter, the attitude is experienced by the speaker, but it is not verbally spelled out.

Recapitulating, this analysis summarizes a number of properties: *Tan* is a relational word between a reference degree d_S and a standard degree d_S; the relation that is established between this two degrees is the equative comparative $\succeq$; the existence of d_S is presupposed; *tan* is a PSI and from this it follows that d_S – the minimal level that is reached – is high; *tan* is intrinsically deictic.

4.1.2.5   Appendix. Other environments that license *tan*

So far, we have drawn an interesting parallelism between NPIs and the PSI *tan* in DE contexts. Also, it has been pointed out that some licensing contexts are not DE, but, still, they license *any* and *tan*. To this we have to add that some contexts do license the PSI *tan*, but not the NPI *any*.

To begin with, the presence of a result clause and pending intonation license *tan*.

(307)   a. La Sydney és tan forta que ha sobreviscut.
              'Sydney is so strong that she survived.'

         b. La Sydney és tan forta!
              'Sydney is so strong!'

If we are willing to consider that (307b) is a subtype of result clause construction that

leaves to context the role of filling in the *that*-clause that is unsaid, then only one case needs to be accounted for. If, as previously suggested, the relation between the matrix clause and the *that*-clause is a biconditional, then the following proposition may be part of the meaning of (307a).

(308)   'Si la Sydney és tan forta, ha sobreviscut.'

        'If Sydney is so strong, then she survived.'

Roughly, this amounts to saying that in every world in which Sydney is *d*-strong, she survives. Since *tan* is in the scope of the *if*-clause (a DE context), it is licensed.

Another context that licenses *tan* is a non-finite verbal form, such as the infinitive or the gerund:

(309)   a. Portar un nen a un món que està tan fotut no té gaire sentit.
            'To bring a baby to a world that is so messed up doesn't make much sense.'

        b. Sent   tan llesta, no   tindrà   problemes per aprovar les matemàtiques
            being so   smart NEG have.FUT.she problems   to   pass   the mathematics
            'Since she is so smart, she won't have any problems to pass mathematics.'

Probably, these non-finite verbal forms include a hidden conditional (*If you bring a baby to a world that is so messed up...*) or a presuppositional causal clause, which also licenses *tan*:

(310)   Com que és tan llesta, no tindrà problemes per passar les matemàtiques

        'Since she is so smart, she won't have any problems to pass mathematics.'

Then, there is a case in which *tan* heads a DegP inside a DP headed by a demonstrative:

(311)   a. Aquell estudiant tan intel·ligent ha   suspès l'examen
            that   student   so   intelligent AUX.he failed the exam
            '(lit.) That student so intelligent has failed the exam.'

        b. Ha   vingut a veure't aquest senyor tan amable
            AUX.he come   to see you this   mister so   kind
            '(lit.) This man so kind has come to see you.'

        c. He   portat aquest pa   tan bo   del forn nou que han   obert
            AUX.I brought this   bread so good of the bakery new that AUX.they opened
            '(lit.) I've brought this bread so good from the new bakery that just opened up.'

It is interesting to observe to the fact that both POS and *very* are pragmatically awkward in this position. When such degree expressions occur within a DP, then it is understood that DegP classifies N. In the case at hand, we have to imagine that the speaker is referring to a student whom he/she has explicitly classified as very intelligent, intelligent or dumb, for example.

(312) #Aquell estudiant intel·ligent...
       'That intelligent student...'

(313) #Aquell estudiant molt intel·ligent...
       'That very intelligent student...'

On the other hand, these DPs are definite and specific, so in principle a definite article would be as suitable as the demonstrative, but it is clearly worse:

(314) ??L'estudiant tan intel·ligent ha suspès l'examen
       '(lit.) The student so intelligent has failed the exam.'

This contrast also arises in general with N modification in these cases:

(315) a. ?El noi de 24 anys ha guanyat un premi.
           'The 24-year old boy has won a prize.'

       b. Aquest noi de 24 anys ha guanyat un premi.
           'This 24-year old boy has won a prize.'

(316) a. Els nois de 24 anys han guanyat un premi.
           'The 24-year old boys have won a prize.'

       b. Aquests nois de 24 anys han guanyat un premi.
           'These 24-year old boys have won a prize.'

What these sets of examples highlight is that the definite article involves a restrictive reading in which the N modifier restricts the meaning of N, whereas with the demonstrative, the N modifier qualifies the N that is referred to. It is interesting to observe that when we have a plural definite determiner as in (316a), the proposition is acceptable because it restricts on a plurality of individuals, so we infer that there are individuals of different ages. However, even if the example is acceptable, this is not what is inferred from the example in (316b), which shows again that the semantics of definite determiners and demonstratives is different.

To what extent these contexts of *tan*-licensing have to be considered within the account of strengthening that has been presented is a topic for future research. At least, it seems that in all the cases where *tan* is licensed, the degree indicated is high.

4.1.2.6 *Més*

After having analyzed the behavior of *tan* and having found out that it is a PSI, it is the time to examine *més*, which appears to be interchangeable with *tan* only in exclamative contexts. As we will see, both *més* and *tan* are degree words that involve a relation between a standard degree and a reference degree, but they do not denote the same relation. Let us review the data:

(317)   In a comparative

    a. En Pau és més alt que en Kareem.
       the Paul is more tall that the Kareem

       'Pau is taller than Kareem.'

    b. En Pau és tan alt com en   Kareem.
       the Paul is as   tall as   the Kareem

       'Pau is as tall as Kareem.'

(318)   In an EXC

    a. Quin noi més alt, en Pau!
       what boy more tall the Paul

       'What a tall boy Pau is!'

    b. Quin noi tan alt, en Pau!
       what boy so   tall the Paul

       'What a tall boy Pau is!'

The fact that *més* appears in comparative contexts introducing the $\succ$ relation (317), makes it difficult to treat it on a par with *tan* (which is claimed to involve the $\succeq$ relation), although they both can appear in exclamative contexts in the same position and with no difference in meaning whatsoever ((318)).

    Tan has been revealed to behave like a PSI:

(319)   *En Pau és tan alt.
     the Paul is so   tall

     'Pau is so tall.'

However, this does not apply to *més*. It certainly cannot appear on its own out of the blue, but can if there is a salient degree that works as a comparative clause:

(320)   #En Pau és més   alt.
        the   Paul is more tall

        'Pau is taller.'

(321)   a. A: En Kareem fa   2,15 metres.
            A: the Kareem does 2.15 meters

            'A: Kareem is 2.15 meters tall.'

        b. B: Doncs en   Pau és més   alt.
            B: Well   the Paul is more tall

            'B: Pau is taller.'

        c. *B: En Pau és tan alt.
            B: the Paul is so   tall

            'B: Pau is so tall.'

As can be seen from the preceding examples, *més*, as opposed to *tan*, can appear on its own in positive contexts, which shows that it is not a PSI. Its only constraints are due to the semantic requirements of the degree operator. That is, *més* establishes a comparative relation between two degrees: One that is expressed by the actual degree of ADJ-ness of some individual and another degree that is expressed by a *than*-clause (which is actually a *that*-clause in Catalan). Hence, if this second degree is salient in the context, it can be omitted from the discourse.

Another reason to think that *més* is not a PSI is that being in a DE context does not have any effect on its d_S variable:

(322)   a. En Pau no és més alt que en Kareem.
            the Paul is not more tall that the Kareem

            'Pau is not taller than Kareem.'

        b. The degree to which Pau is tall is not higher than the degree to which Kareem is
            tall

The paraphrase of (322a) is given in (322b) in accordance with Kennedy (1999)'s analysis (which is the one I adopt here).

The prototypical case of phrasal comparative like *Pau is taller than Kareem* does not manage to comply with the characteristics of EXCs for two main reasons: EXCs require that

d_S be a high degree, and the comparison is not established with another individual, but rather with a standard degree applied to the same individual.

However, there is a type of comparative whose meaning is close to the meaning of an EXC is a *paradigmatic comparative*. In a way, paradigmatic comparatives resemble result clause constructions, because d_S is necessarily high enough that the speaker holds an attitude towards it. For example:

(323)　a.　Això és més vell que l'anar   a peu.
　　　　　　this is more old that the going to food

　　　　　　'(lit.) This is older than going on foot.' (This is very old)

　　　b.　És més   tonta que feta d'encàrrec.
　　　　　　is more silly   that done of order

　　　　　　'(lit.) She is sillier than made to order.' (She is very silly)

They are called *paradigmatic* because the *that*-clause is employed is always associated with a particular GA and it always involves high degree of ADJ-ness.

The sentence in (323a) is true only if the degree to which the referent of this is old exceeds the maximal degree d such that going on foot is at least as old as d; and (323b) is true if and only if the degree to which the referent of the subject is silly exceeds the maximal degree such that being done to order implies being at least as silly as d.

Paradigmatic comparatives manage to express high degree and the consequent attitude on the part of the speaker. From this, a proposal of analysis can be built, although – as in the previous case – somehow we need to obtain the same meaning without the use of a *than*-clause. As a matter of fact, we need to feed the degree operator with a free degree variable that gets its meaning depending on the context. Here is a proposal:

(324)　a.　$[\![\text{més}_{exc}]\!] = \lambda G_{<e,d>} \lambda d \lambda x [\text{MÉS}_{exc}(G(x))(d)]$

　　　b.　$[\![\text{MÉS}_{exc}(d_R)(d_S)]\!] = 1$ iff $d_R \succ d_S$

　　　c.　d_S is a free degree variable that obtains its meaning from context and always refers to a degree that is high.

According to this proposal, $més_{exc}$ is a function of the same type as comparative *more* on Kennedy (1999)'s analysis with the difference that d_S is necessarily a free variable (just like in absolute constructions). That is how I prevent it from being provided by a phrase or a clause (which never happens in an exclamative environment).

Notice that so far we have been dealing with predicative comparative constructions (ones in which the degree construction is predicated of an individual), but the context of appearance of $més_{exc}$ is that of an attributive comparative construction, such as the following:

(325)   From (Kennedy, 1999, 125)

      a.   Mars has a thinner atmosphere than Venus

      b.   I bought a less powerful telescope than Jaye did.

(326)   a.   Quin noi més alt, en Pau!
          what boy more tall the Paul
          'What a tall boy Pau is!'

      b.   Quin pastís més bo   que m'he   menjat!
          what cake   more good that to.me AUX.I eaten
          'What a tasty cake I ate!'

Since I am assuming that *quin* is an indefinite with a [+wh] feature, the sentences in (326a) should parallel these that follow:

(327)   a.   *En Pau és un noi més alt
          the Paul is a   boy more tall

      b.   *M'he   menjat un pastís més bo
          to.me AUX.I eaten   a   cake   more good

(328)   a.   En Pau és un noi més alt!
          the Paul is a   boy more tall
          'Pau is such a tall boy!'

      b.   M'he   menjat un pastís més bo!
          to.me AUX.I eaten   a   cake   more good
          'I ate such a tasty cake!'

(329)   a.   A: M'he   menjat un pastís molt bo.
          A: to.me AUX.I eaten   a   cake   very good
          'A: I ate a very tasty cake.'

      b.   B: Doncs jo m'he   menjat un pastís encara més   bo.
          B: well   I to.me AUX.I eaten   a   cake   even   more good
          'B: Well, I ate an even tastier cake.'

Interestingly, the sentences in (327) are not acceptable out of the blue. If there is a salient d_S in the context of utterance, then it is possible with an *even* reading ((329b)) and the *than*-clause is not banned. Nevertheless, they are always fine when there is pending intonation (or

a *than*-clause), just as happens with *tan*. In the case of (329b), the context does not value a free variable, but it helps in identifying the *that*-clause that is not spelled out; plausibly, in the case of $més_{exc}$, the degree variable is free and is given a value by the speaker, who decides what being a high degree means. In both *wh*-movement and pending intonation cases, an overt move has been carried out to warn the semantics that the variable is free and that the degree is high.

All this said, a further remark is in order: I have been assuming for *tan* the standard is equalled or exceeded, whereas for $més_{exc}$ d_S is exceeded. How can it be that the two degree words are exchangeable in an exclamative environment? Even though I am not ready to give a definitive answer to this, intuitively, there is a degree d such that when individual x reaches d then an attitude makes an appearance. If x not only reaches but exceeds d, then both degree words are equally suitable.

The thorough reader must have realized that under this account of $més_{exc}$, the comparative morpheme cannot be treated as a scale adjuster (type $<< e, d >, < e, d >>$) – which has been assumed to be the right analysis given the data from multiple modification (see section 4.1.1.3 and Kennedy and McNally (2005b) for the details). Rather, in the analysis that I have proposed here, $més_{exc}$ is of type $<< e, d >, < d, < e, t >>>$. I leave for future research the effort to make the benefits of both approaches coincide. However, the analysis does correctly predict that multiple modification with $més_{exc}$ will be banned for the same reason that multiple modification is ruled out with measure phrases and *tan*.

4.1.3   Summary

This section has dealt with the gradable component of EXCs. It has been shown that EXCs contain a DegP headed by a degree operator, which can be *tan* ('so') or *més* ('more'). They both take as input a GA and they denote a relation between a reference degree and a standard degree – *tan* involves the $\succeq$ relation, whereas *més* involves the $\succ$ relation – and the standard degree is high.

I have focused on *tan* and have described it as a polarity sensitive item, because it is not licensed in positive contexts, but in DE-contexts. Also, I have proposed that *tan* is licensed by means of a reversal of entailment patterns; in particular, in EXCs, the attitude towards degrees that the speaker experiences provides the appropriate licensing context.
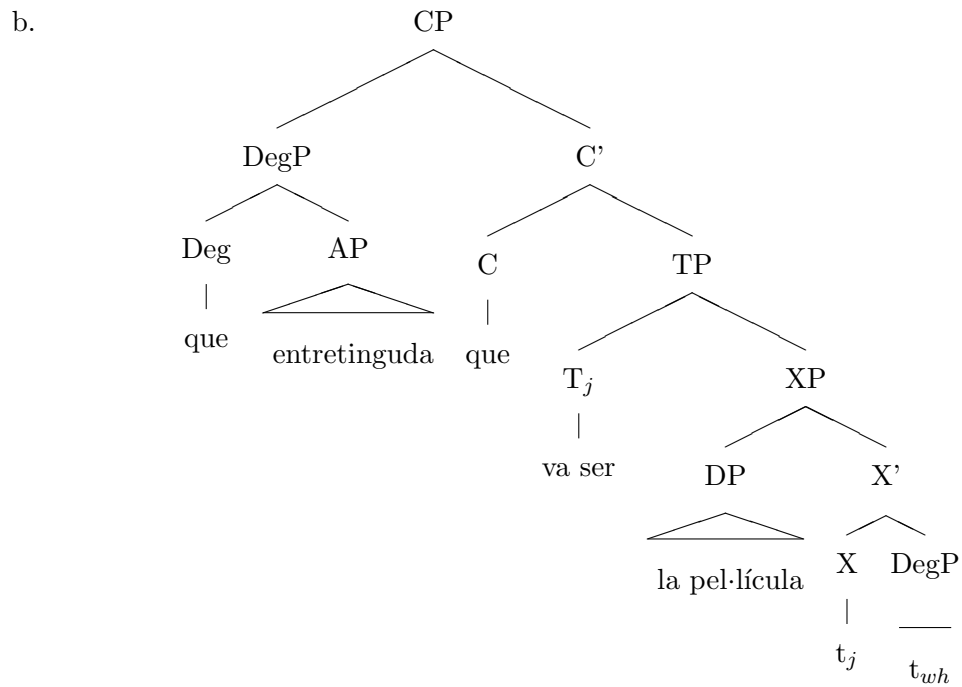
4.2   Mapping the syntax and the semantics

So far we have reviewed the properties of the basic components of EXCs, namely, GAs, their modifiers and the degree operators that occur in EXCs. Nonetheless, some puzzles have not yet been solved. The goal of this last section is to put all the pieces together and derive the truth conditions of the two types of EXCs that we have been studying. Crucially, the semantic composition will return a truth value, which is not what we want at the end, but this will be discussed in the next chapter, where EXCs are treated as facts.

At this point, though, my purpose is to compute the propositional meaning of the two EXCs that are the object of study in this thesis and explore how the manner adverbs that modify the GA in an EXC have to be analyzed.

4.2.1   *Que*-exclamatives

Que-exclamatives are those EXCs that occur in predicative contexts (DegP is interpreted as being predicated of an individual that is the head of a DP). In accordance with the analysis proposed in chapter 3, a sentence like the one in (330a) is a CP that contains a *wh*-moved DegP from a predication structure. To respect antisymmetry (Kayne, 1994), I assume there is a functional projection that is selected by T that contains a small clause headed by X, where the copula is base generated.

(330)   a. Que entretinguda que va ser la pel·lícula!
             'How entertaining the movie was!'

b.

```
                              CP
                    ┌─────────┴─────────┐
                  DegP                  C'
               ┌───┴───┐           ┌────┴────┐
             Deg      AP           C         TP
              │    ┌───┴───┐       │      ┌───┴───┐
             que  entretinguda    que    T_j      XP
                                   │      │     ┌──┴──┐
                                  va ser  DP        X'
                                       ┌──┴──┐    ┌──┴──┐
                                    la pel·lícula  X   DegP
                                                   │    ───
                                                   t_j   t_wh
```
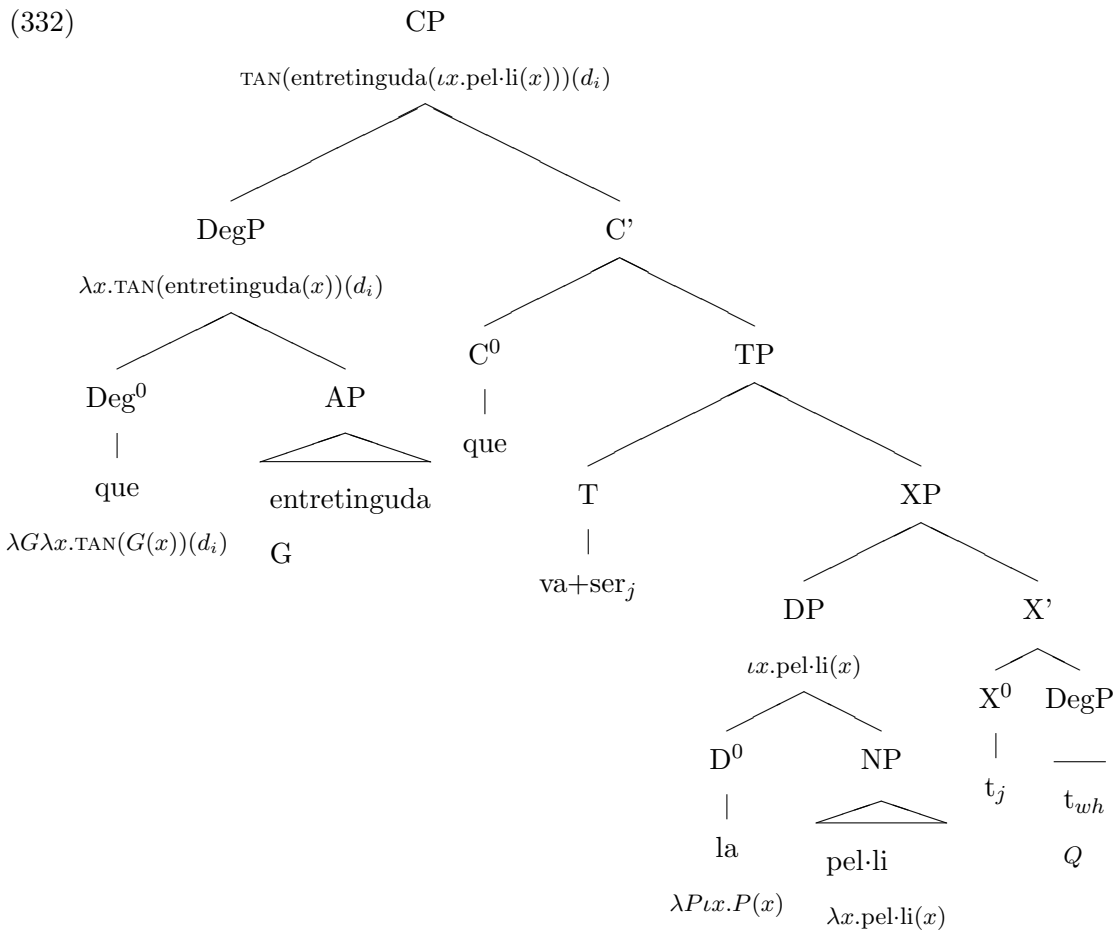
As proposed in the previous chapters, *que* is construed as being the degree operator *tan* with an additional feature [+wh] that forces the whole DegP to move to the specifier position of CP. The interpretation of *que* is exactly the same as the interpretation of *tan*. That is:

(331)   a. $\llbracket \text{TAN}(d_R)(d_S) \rrbracket = 1$ iff $d_R \succeq d_S$

b. $\llbracket \text{tan} \rrbracket = \llbracket \text{que} \rrbracket = \lambda G_{<e,d>} \lambda x.\text{TAN}(G(x))(d_i)$
Where the value of i is given by the context and it is always high.

The semantic composition for (330a) is presented below:

(332)

$$\text{CP}$$
$$\textsc{tan}(\text{entretinguda}(\iota x.\text{pel·li}(x)))(d_i)$$

Tree (332):

- CP : $\textsc{tan}(\text{entretinguda}(\iota x.\text{pel·li}(x)))(d_i)$
  - DegP : $\lambda x.\textsc{tan}(\text{entretinguda}(x))(d_i)$
    - Deg^0 : que — $\lambda G\lambda x.\textsc{tan}(G(x))(d_i)$
    - AP : entretinguda — G
  - C'
    - C^0 : que
    - TP
      - T : va+ser$_j$
      - XP
        - DP : $\iota x.\text{pel·li}(x)$
          - D^0 : la — $\lambda P\iota x.P(x)$
          - NP : pel·li — $\lambda x.\text{pel·li}(x)$
        - X'
          - X^0 : t$_j$
          - DegP : t$_{wh}$ — Q

(332) is interpreted as in (333):

(333)   ⟦Que entretinguda que va ser la pel·lícula!⟧ $= 1$ iff $\textsc{tan}(\text{entretinguda}(\iota x.\text{pel·li}(x)))(d_i)$[21]

That is, there is a single individual such that this individual is a movie and the degree to which this movie is entertaining is at least as high as a contextually determined standard degree that is described by the speaker as being high.
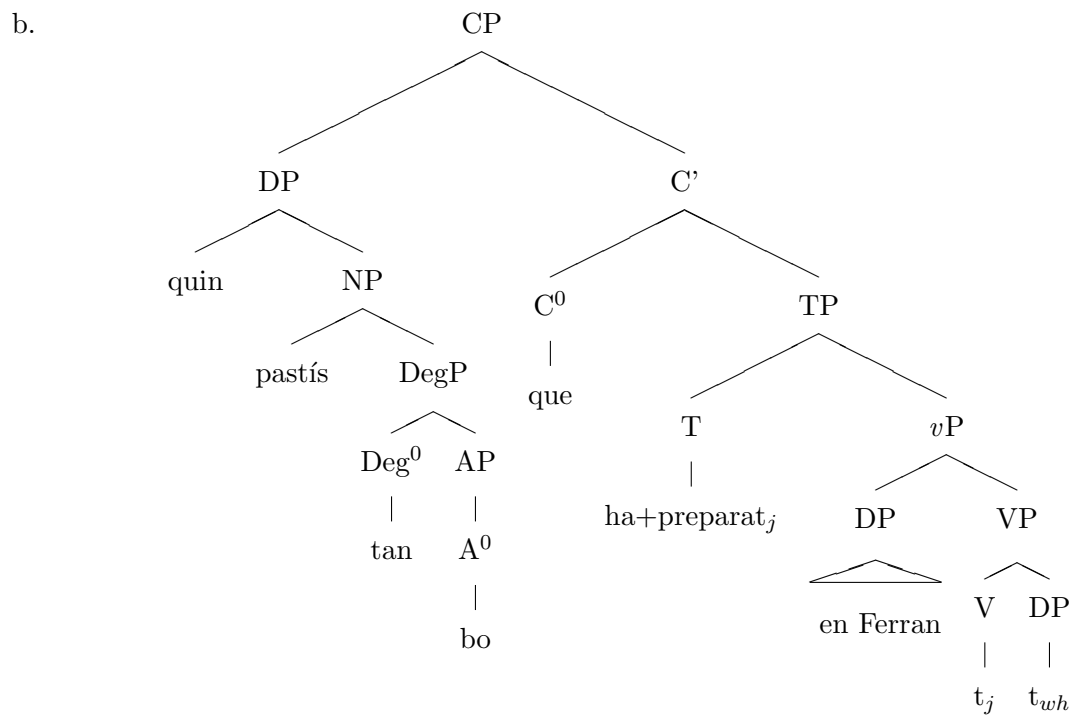
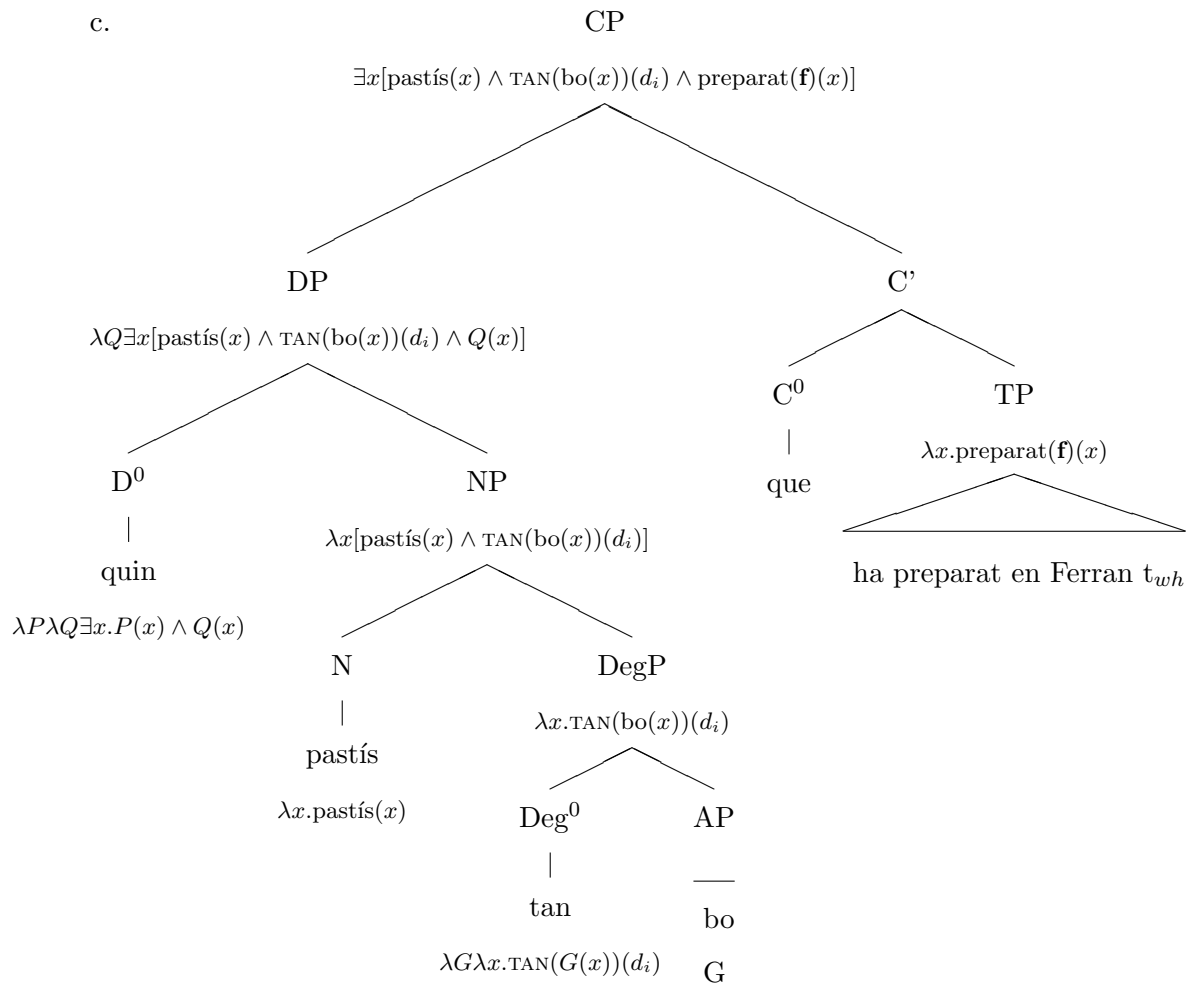### 4.2.2   *Quin-+* N-exclamatives

Expectedly, the derivation of the truth values of attributive exclamative constructions will not be very different from the predicative ones, except for the fact that, this time, DegP is not the main predicate of a sentence, but a modifier of an NP.

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[21]For the sake of simplicity and because it does not matter for my purposes here, I do not give any semantic value to the copular verb in this construction where the predicate of the copula is a DegP/AP.

(334)   a. Quin pastís tan bo que ha preparat en Ferran!

'What a delicious cake Ferran made!'

b.

```
                              CP
                   _____
                  DP                     C'
             _____         _____
            quin        NP       C⁰              TP
                    _____    |         _____
                  pastís    DegP  que       T            vP
                         _____       _____   _____
                       Deg⁰     AP     ha+preparatⱼ   DP       VP
                        |       |                   _____   _____
                       tan     A⁰                  en Ferran  V     DP
                                |                             |      |
                                bo                            tⱼ    t_wh
```

c.

$$CP$$
$$\exists x[\text{pastís}(x) \land \text{TAN}(\text{bo}(x))(d_i) \land \text{preparat}(\mathbf{f})(x)]$$

DP
$$\lambda Q \exists x[\text{pastís}(x) \land \text{TAN}(\text{bo}(x))(d_i) \land Q(x)]$$

C'

$$D^0$$

quin
$$\lambda P \lambda Q \exists x. P(x) \land Q(x)$$

NP
$$\lambda x[\text{pastís}(x) \land \text{TAN}(\text{bo}(x))(d_i)]$$

$$C^0$$

que

TP
$$\lambda x.\text{preparat}(\mathbf{f})(x)$$

ha preparat en Ferran t_{wh}

N

pastís
$$\lambda x.\text{pastís}(x)$$

DegP
$$\lambda x.\text{TAN}(\text{bo}(x))(d_i)$$

$$Deg^0$$

tan
$$\lambda G \lambda x.\text{TAN}(G(x))(d_i)$$

AP

bo

G

(334c) is interpreted as follows:

(335)   ⟦Quin pastís tan bo que ha preparat en Ferran!⟧ = 1 iff $\exists x[\text{pastís}(x) \land \text{TAN}(\text{bo}(x))(d_i) \land$
        $\text{preparat}(\mathbf{f})(x)]$

In other words, there is an individual x such that x is a cake and Ferran made it, and the
degree to which this cake is good is at least as high as a contextually determined standard
that is described by the speaker as being high.

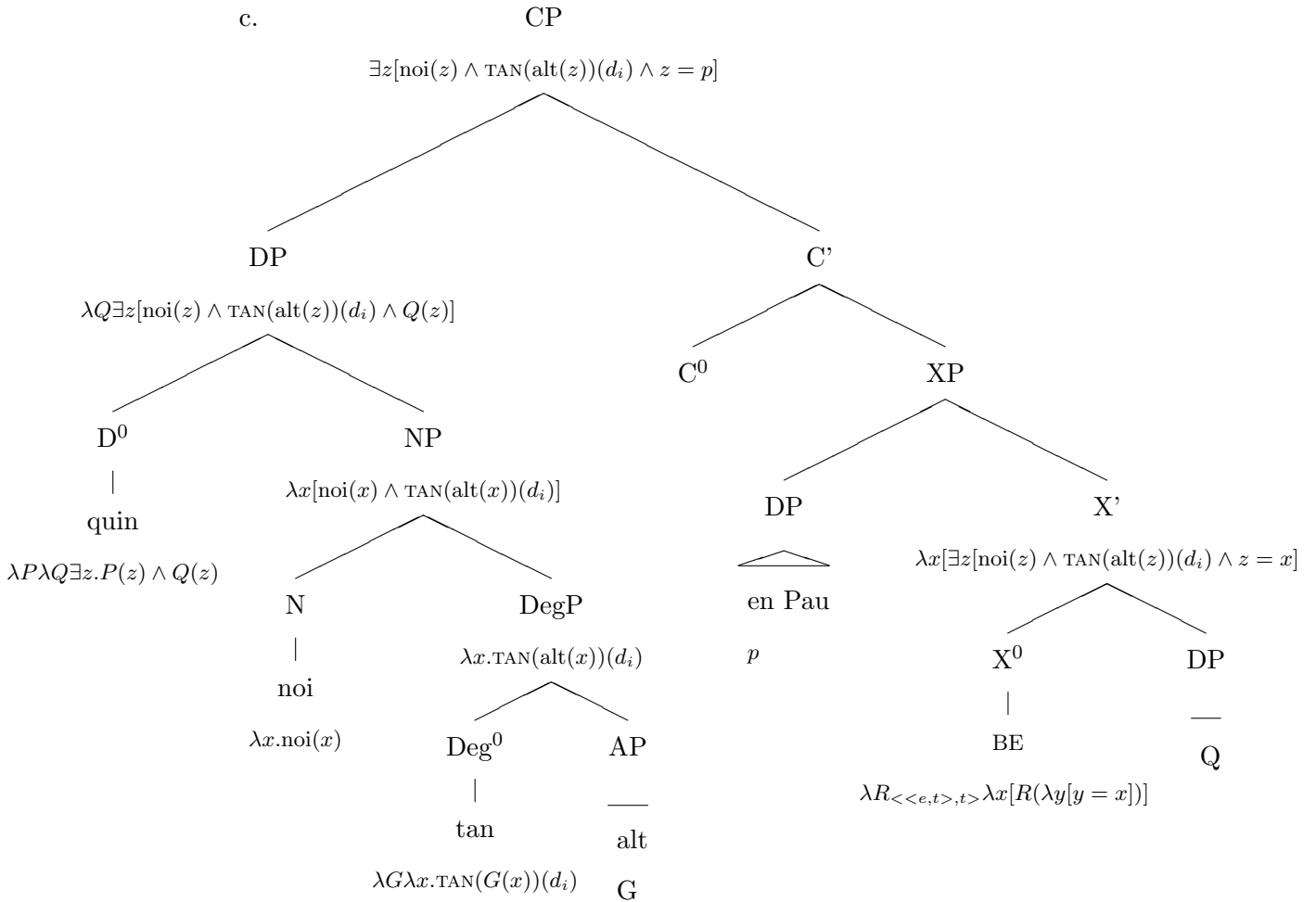As a final comment, it is worth mentioning the case in which there is verbless predication.

(336)   a. Quin noi tan alt, en Pau!

b.

$$\text{CP}$$

DP — C'

D: quin — NP

NP → N, DegP

N: noi

DegP → tan, AP

AP: alt

C' → C, XP

XP → DP, X'

DP: En Pau

X' → X, DP

DP: t_{wh}

c.

CP
$\exists z[\text{noi}(z) \wedge \text{TAN}(\text{alt}(z))(d_i) \wedge z = p]$

DP
$\lambda Q \exists z[\text{noi}(z) \wedge \text{TAN}(\text{alt}(z))(d_i) \wedge Q(z)]$

D^0
quin
$\lambda P \lambda Q \exists z. P(z) \wedge Q(z)$

NP
$\lambda x[\text{noi}(x) \wedge \text{TAN}(\text{alt}(x))(d_i)]$

N
noi
$\lambda x.\text{noi}(x)$

DegP
$\lambda x.\text{TAN}(\text{alt}(x))(d_i)$

Deg^0
tan
$\lambda G \lambda x.\text{TAN}(G(x))(d_i)$

AP
alt
G

C'

C^0

XP

DP
en Pau
p

X'
$\lambda x[\exists z[\text{noi}(z) \wedge \text{TAN}(\text{alt}(z))(d_i) \wedge z = x]$

X^0
BE
$\lambda R_{<<e,t>,t>} \lambda x[R(\lambda y[y = x])]$

DP
Q
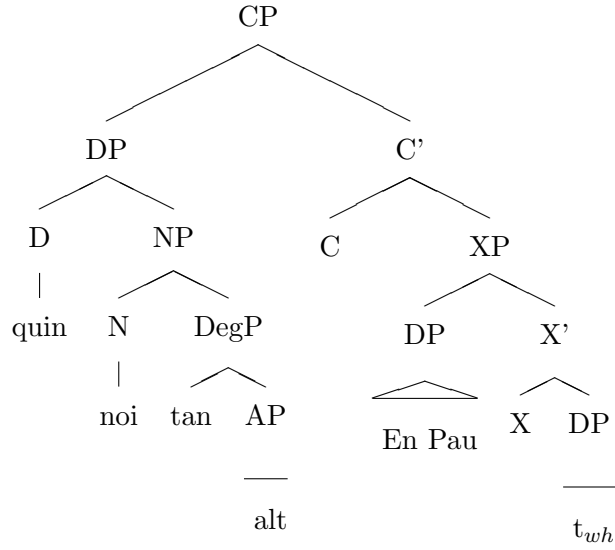
(336c) is interpreted as follows:

(337)   ⟦Quin noi tan alt, en Pau!⟧ = 1 iff $\exists z[\text{noi}(z) \wedge \text{TAN}(\text{alt}(z))(d_i) \wedge z = p]$

Though here we have a small clause construction, the derivation is the same for the moved DP in (336b) and the moved DP in (332). Unlike what happens in (332), in (336b) the copula does not (cannot) occur in Catalan, but the XP structure is the same: The specifier of X contains the subject, and its complement contains the predicate. The silent copula denotes a function that takes the predicate (of type $<< e, t >, t >>$) and makes sure that the referent of the subject is identified with the individual variable in the predicate (that is, $y=x$). In the case at hand, the subject is the DP *en Pau*, which denotes an individual, and the predicate is the DP *Quin noi tan alt*, which is semantically composed as *Quin pastís tan bo* in (334c). Observe that although the DP has moved to Spec,C, it is interpreted in its base position, so the function represented by the silent copula *BE* can be applied to it.

4.2.3   Modification

It has been mentioned throughout this thesis that the range of possible modifiers inside an EXC is rather limited. In particular, only certain manner adverbs and *poc* ('little') can appear between the degree operator and the GA. Moreover, manner adverbs and *poc* have a different semantic contribution to the truth conditions of an EXC. In a nutshell, I analyze manner adverbs as nonrestrictive modifiers in the line of Potts (2003) and Morzycki (2005), and I consider *poc* to be a particular instance of scale adjuster (cf. Kennedy and McNally (2005b) and section 4.1.1.3).

The hypothesis is that when manner adverbs occur in the context of an EXC, they behave like nonrestrictive modifiers. This way, we manage to capture the fact that these adverbs do not restrict the meaning of the adjective they precede, but they add further content. Notice that if they restricted the adjective like a regular manner adverb (as in (338)), then the resulting measure function should be applied to the degree operator, and we would obtain the undesired meanings paraphrased in (339):

(338)   DegP

$\lambda x[\text{TAN}(\text{extremadament}(G(x))(d_i)]$

tan   AP

$\lambda G \lambda x[\text{TAN}(\text{G'}(x))(d_i)]$ G'

                                              AP   AP

                          $<< e,d >, < e,d >>$ ——

                                                              G

                                   extremadament
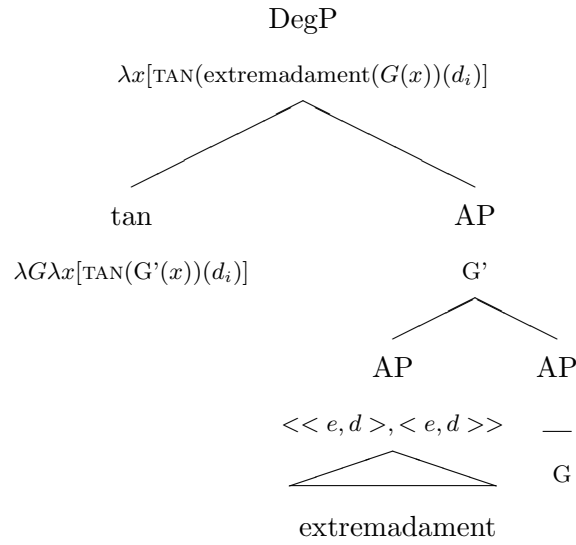
(339)   a. How extremely tall Pau is! → Pau is extremely tall to a degree that at least
             reaches a contextually determined standard that is high.

         b. How frustratingly late Svetlana is! → Svetlana is frustratingly late to a degree
             that at least reaches a contextually determined standard that is high.

I want to argue that, when these manner adverbs modify the GA of an EXC, they describe
the degree of ADJ-ness that holds of an individual. Hence, the actual denotation is roughly
as follows:

(340)   a. How extremely tall Pau is! → Pau is tall to a degree that at least reaches a
             contextually determined standard that is high & the speaker describes this degree
             of tallness as being extreme.

         b. How frustratingly late Svetlana is! → Svetlana is late to a degree that at least
             reaches a contextually determined standard that is high & the speaker describes
             this degree of being late as frustrating.

To be able to obtain the meanings in (340), I tentatively propose to adopt Potts (2003)'s
model for analyzing conventional implicatures, which is applied by Morzycki (2005) to a class
of nonrestrictive modifiers. One of Pott's claim is that certain conventional implicatures are
generated by lexical items, which contribute a meaning that is not asserted meaning (or in
his own terms, *at-issue entailments*). In particular, he draws a distinction between different
kinds of meaning of which we will focus on at-issue entailments and conventional implicatures.
They are both not deniable, lexical and not backgrounded. That is, they are entailments,

which means that a speaker cannot utter p and $\neg p$ without contradicting him/herself; they are part of the conventional lexical meaning of words, and the information they convey is not part of what Stalnaker (1978) calls *the Common Ground*. However, conventional implicatures are speaker-oriented and are invariant under presupposition holes, none of which holds for at-issue entailments. Consider the following examples from Potts (2003):

(341) a. Sue wrongly believes that that jerk Conner got promoted.

 b. I am not looking after Sheila's damn dog while she's on holiday.

What (341a) illustrates is that the lexical items *wrongly* and *jerk* cannot be at-issue meaning because these words are invariably added by the speaker as a personal comment. In other words, it is not entailed that Sue thinks that Conner is a jerk. Potts claims that this example attributes to Sue only the belief that Conner got promoted. On the other hand, (341b) instantiates one of the typical presupposition holes (i.e., negation) and we can check that it is still the speaker the one who disapproves of having to look after Sheila's dog by the use of *damn*.

Morzycki (2005) applies a slightly modified version of Potts (2003)'s analysis to nonrestrictive modifiers in non-parenthetical positions. By this, he refers to adjectives like *unsuitable* in (342a) and adverbs like *rapidly* in (342b):

(342) a. Every unsuitable word was deleted.

 b. The Titanic('s) rapidly sinking caused great loss of life.

Admittedly, *unsuitable* and *slowly* may also have a restrictive meaning. Here are the paraphrases for the restrictive and nonrestrictive meanings Morzycki adopts:

(343) From Larson and Marusic (2004)

 a. Restrictive: Every word that was unsuitable was deleted.

 b. Nonrestrictive: Every word was deleted; they were unsuitable.

(344) a. Restrictive: The Titanic's sinking being rapid caused great loss of life.

 b. Nonrestrictive: The Titanic's sinking, which was rapid, caused great loss of life.

Notice the similarities between the nonrestrictive paraphrases and the paraphrases that have been given to manner adverbs within an exclamative context. Let us recall a relevant example:

(345)   Pau is tall to a degree that at least reaches a contextually determined standard that
        is high & the speaker describes this degree of tallness as being extreme.

In all these cases, there are two dimensions of meaning, one of which is the conventional
implicature and one that is treated as a side comment made by the speaker but whose deno-
tation does not contribute to the computation of the other kind of meaning. If the manner
adverb were treated restrictively, we would obtain the incorrect meaning in (339) above.

Potts proposes a way to represent this double semantic dimension and to semantically
compose both kinds of meanings. In particular, conventional implicatures are computed in
parallel to at-issue entailments, so the former do not interfere the semantic composition of the
latter, and conventional meaning is passed to the upper nodes of the composition as part of
a two-dimensional semantics. Here is how this is represented (slightly simplified from (Potts,
2003, 84)):

(346)   CI application

$$\beta\colon \sigma^a$$

$$\bullet$$

$$\alpha(\beta)\colon\tau^c$$

$$\alpha\colon <\sigma^a, \tau^c> \quad \beta\colon \sigma^a$$
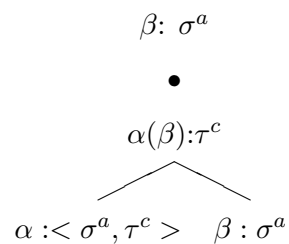
In this mode of representation, what lies above the bullet is the at-issue entailment, and
below the bullet is the conventional implicature. Moreover, superscript a stands for *at-
issue entailment* and superscript c stands for *conventional implicature*. With the previous
graphic, Potts wants to show that Functional Application also works for the computation of
conventional implicatures. Here, α takes a category that belongs to the at-issue dimension
(i.e., β) and returns a category of the conventional implicature dimension. The result of
this kind of Functional Application (i.e., CI application) is that β remains untouched in
the at-issue dimension, but it is the argument of a function in the conventional implicature
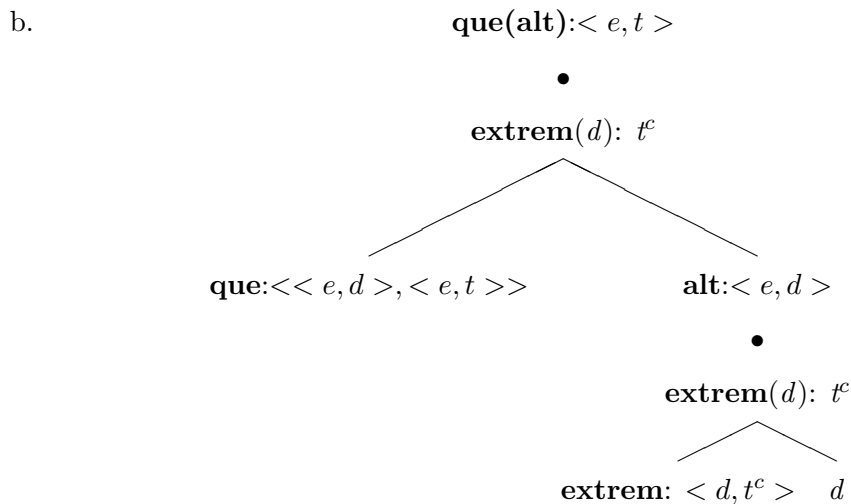dimension.

The following example from (Potts, 2003, 83) illustrates the graphic in (346):

(347)   a. Fortunately, Beck survived.

b.
$$\lambda w.\textbf{survive}_w(\textbf{beck}): <s^a, t^a>$$

$\bullet$

$$\textbf{fortunately}(\lambda w.\textbf{survive}_w(\textbf{beck})):<s^a, t^c>$$

$$\textbf{fortunately}:<<s^a,t^a>,<s^a,t^c>> \qquad \lambda w.\textbf{survive}_w(\textbf{beck}):<s^a,t^a>$$
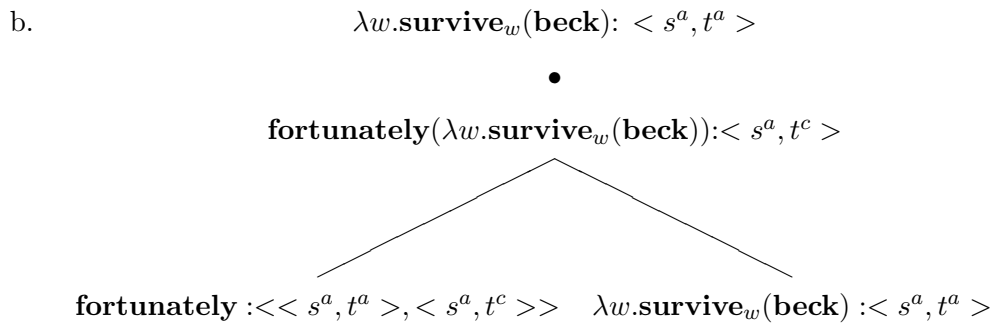
What interests us from this semantic representation is that the meaning above the bullet is insensitive to the presence of the meaning below the bullet; and, also, that category β (in the example, the clause *Beck survived*) is used twice in the derivation: Once in the at-issue entailment level and once in the conventional implicature level. Even though I will not treat the descriptive meaning of an EXC as being an at-issue meaning (as shall be seen in chapter 5), I analyze the presence of manner adverbs in exclamative contexts following these same assumptions:

(348)   a. [$_{DegP}$ Que extremadament alt]

'How extremely tall.'

b.
$$\textbf{que}(\textbf{alt}):<e,t>$$

$\bullet$

$$\textbf{extrem}(d): t^c$$

$$\textbf{que}:<<e,d>,<e,t>> \qquad \textbf{alt}:<e,d>$$

$\bullet$

$$\textbf{extrem}(d): t^c$$

$$\textbf{extrem}: <d,t^c> \qquad d$$

A few comments with regard to the previous representation are in order. First, I have not used the superscript a because the meaning above the bullet is not asserted (see chapter 5). Second, note that I have made use of the adjective *extrem* ('extreme') instead of the manner adverb *extremadament* ('extremely'), because I assume that what the manner adverb contributes is a description of a degree, and this function is carried out by an adjective[22]

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[22]As (Potts, 2003, 19) points out, the semantic composition may display a deviation with regard to the

(i.e., the degree is described as extreme). As such, the manner adverb is of type $< d, t >$ and, hence, when it merges with d, we obtain a propositional meaning. On the other hand, observe that I have set aside the d variable of the GA so the function **extrem** can be applied to d by CI application, even though d does not merge with e by Functional Application to create the measure function $< e, d >$. Admittedly, this lack of parallelism between the cases presented by Potts and the ones from EXCs is not a trivial matter; the refinement of this proposal applied to manner adverbs in exclamative environments will have to be considered in future research.

Under this view, where manner adverbs are descriptions of degrees, we can derive that EXCs cannot be modified by manner adverbs like *reasonably, slightly* or *fairly*: It seems contradictory that the degree to which an individual is ADJ is high and, yet, the speaker makes a comment on the adjective that suggests that this individual is not ADJ to a high degree. Recall this contrast from chapter 2 due to Elliott (1974):

(349)   a. It's amazing how very/ unbelievably/ extremely long he can stay under water.

         b. *It's amazing how slightly/ fairly/ reasonably long he can stay under water.

The same contrast applies to matrix EXCs in Catalan:

(350)   Que extremadament/*raonablement alt que és en Pau!
        'How extremely/*reasonably tall Pau is!'

If the descriptive content of an EXC involves that Pau is tall to a degree that at least reaches a standard that is considered to be high, then it would be contradictory to describe this degree as being reasonable.[23]

Let us turn to another possible adjective modifier within an exclamative context in Catalan: *poc* ('little'), which I propose is of type $<< e, d >, < e, d >>$. It has the type of a scale adjuster (cf. Kennedy and McNally (2005b) and section 4.1.1.3) and the effect it does on

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syntactic composition. Until we can find a better option, I leave to morphology the job of adding the morpheme *-ment* ('-ly') to the GA, and to syntax, the job of placing the adverb in the position where it surfaces.

[23]An issue that will not be resolved in this thesis is the reason why English allows *very* to modify the GA within an EXC (e.g., *How very tall Pau is!*) and Catalan does not have this option with *molt* ('very') (e.g. **Que molt alt que és en Pau!*). A line of research would be to think of *very* as being deadjectival and with a similar meaning as *truly*. Note that *molt* cannot be construed as deriving from an adjective, unlike the manner adverbs that can surface as modifiers of the GA in an EXC.

the measure function it takes as argument is to invert its polarity. That is, *poc* is a function that takes a GA which grows to ∞ if it has a positive polarity or to 0 if it has a negative polarity, and it returns the same GA with the opposite polarity (it grows to 0 if it has a positive polarity and to ∞ if it has a negative polarity). If we take the GA *tall*, the adjective will grow to its *shortness* and if we take *short*, it will grow to its tallness.

I have assumed in section 4.1.1.1 along with Kennedy (2001) that degrees are viewed as intervals. In particular, as a convex, nonempty subset of a scale, which is interpreted as a linearly ordered, infinite set of points associated with a dimension (e.g., height, length, weight, etc.). Furthermore, scales contain a set of positive degrees and a set of negative degrees, which are defined as follows (from (Kennedy, 2001, 53)):

(351)   a. POS(S) = $\{d \subseteq S | \exists p1 \in d \forall p2 \in S[p2 \succeq p1 \rightarrow p2 \in d]\}$

       b. NEG(S) = $\{d \subseteq S | \exists p1 \in d \forall p2 \in S[p1 \succeq p2 \rightarrow p2 \in d]\}$

This definition makes sure that the projection of an object x onto the positive interval POS(S) ($pos_S(x)$) and onto the negative interval NEG(S) ($neg_S(x)$) are join complementary intervals on the scale. The maximal degree of the positive projection for a scale S $pos_S(x)$ coincides with the minimal degree of the negative projection for a scale S $neg_S(x)$. This description of how positive and negative degrees are structured along the same scale captures the distinction that underlies antonymous pairs of adjectives, such as *tall* and *short*. This is how (Kennedy, 2001, 53) derives the definition of adjective polarity:

> [...] the set of positive degrees on a scale S and the set of negative degrees on S are disjoint. Given this, adjective polarity can be characterized as a difference in the ranges of the functions denoted by positive and negative adjectives: positive adjectives denote functions from individuals to positive degrees; negative adjectives denote functions from individuals to negative degrees. Antonymy, in this view, holds when two adjectives have the same domains but different ranges, and they map identical arguments onto (join) complementary regions of the same scale.

Hence, positive adjectives range from 0 to ∞, whereas their negative counterparts range from ∞ to 0, and this information is lexically encoded in every lexical item. Interestingly, the relation between antonyms construed in this way is not the same as the relation between

a GA and a GA that is the argument of *poc*. What I argue is the effect of *poc* is to invert the polarity of the GA without changing the fact that an adjective is positive or negative. That is, as a scale adjuster, *poc* takes an adjective and it returns the same adjective with the opposite polarity. Consequently, *poc* is not a function that takes *tall* and returns *short*. It returns *poc alt* ('little tall'), which not necessarily means *baix* ('short').

Now, in what way is the denotation of *poc*(G) different from the denotation of the antonym of a GA? It is possibly difficult to test to what extent having the property of being *poc alt* ('little tall') differs from having the property of being *baix* ('short'). What we do know is that if *poc* applies to *tall*, this adjective – which originally ranges from 0 to ∞ – ranges from ∞ to 0; and if *poc* applies to *short* – which originally ranges from ∞ to 0 –, it ranges from 0 to ∞, just like their antonyms.

Here is an example of *poc* within an EXC:

(352)   a. Que poc alt que és en Pau!
           how little tall that is the Pau

           '(lit.) How little tall Pau is!'

        b. Pau is *little* tall to degree that at least reaches a contextually determined standard that is described as being high.

        c. ⟦Que poc alt que és en Pau!⟧ = 1 iff TAN(poc(alt(p))(d_i))

So far, I have worked with open-scale GAs, but if we consider closed-scale GAs, we see that having the property of being *poc plena* ('little full') does not coincide with having the property of being *buida* ('empty').

(353)   a. L'ampolla està poc plena.

           '(lit.) The bottle is little full.'

        b. L'ampolla està buida.

           'The bottle is empty.'

Note that whereas in (353a) there is a minimal amount of liquid in the bottle, and this degree of fullness at least reaches a contextually determined standard of being *little full*, in (353b) there is no liquid at all. However, in exclamative contexts, where these closed-scale GAs are not merged with POS, the examples seem to entail each other:

(354)   a. Que poc   plena que està la   piscina!
             how little full   that is   the pool

         '(lit.) How little full the pool is!'

         b. Que buida que està la   piscina!
             how empty that is   the pool

         '(lit.) How empty the pool is!'

In (354a), the pool has a high degree of *little* fullness, whereas in (354b), the pool has a high degree of emptiness, which amounts to being the same thing.

Although my purpose here has not been to provide an analysis of antonymy, from the previous facts we gather that *poc* cannot be construed as a morpheme that takes as argument a GA and returns its antonym. That is, if we understand polarity as a property that distinguishes adjectives between positive and negative, *poc* does not affect this distinction. If we understand a GA as being a vector with a direction, then, what *poc* does is change this direction, not to return its antonym.

4.2.4   Summary

In this subsection the semantic composition has been provided for the two types of EXCs that this thesis deals with, namely, *que*-exclamatives (the ones in which the head of DegP includes [+wh]) and *quin-* + N-exclamatives (the ones in which the determiner contains [+wh]).

Specifically, I have assumed that there is a functor TAN that establishes an equative relation between a reference degree and a standard degree, which has the particularity of being contextually determined and being high.

Adverb modification has also been discussed. I have employed Potts (2003)'s account of conventional implicatures to argue that manner adverbs within an exclamative environment behave like nonrestrictive modifiers. And with regard to *poc* ('little') – the other possible modifier in Catalan – I have proposed to treat it as a scale adjuster which changes the polarity of adjectives.

4.3   Summary

In this chapter I have provided a semantic analysis of EXCs. Crucially, they have been approached as a special kind of degree construction; this means that they all have in common

the presence of a GA and a degree operator. In the case in question, the degree operators are *tan* ('so') and *més* ('more'), which also appear in result clause constructions and comparatives, respectively.

As for the semantics of the degree operators, I have assumed that they establish a relation between a reference degree (the degree to which the individual is ADJ) and a standard degree, which I have argued that it has to be high (as a matter of fact, high enough to provoke an attitude in the speaker). In the case of *tan*, the relation between both degrees is $\succeq$, and in the case of *més*, it is $\succ$.

As for the semantic composition of the different components in an EXC, I have shown that when we map the syntax and the semantics we obtain a truth value. Although this is going to be modified in the next chapter thanks to the analysis of the EXCs' contribution to discourse, I have established the truth conditions of their propositional content. Very briefly, an EXC like *Que alt que és en Pau!* ('How tall Pau is!') contains the following descriptive content: Pau is at least as tall as a contextually determined standard degree that is high.

Chapter 5

Exclamatives as facts

In the previous chapter, EXCs have been approached from the point of view of a degree construction and the semantic composition of their components returned a truth value. However, in this chapter I will take a step further and argue that EXCs do not denote a truth value, but a fact, which will explain their idiosyncratic contribution to discourse. Nevertheless, facts are expected to be embeddable in factive verbs, but this is not the case in Catalan. Hence, I will also deal with the conditions that must be met in order for EXCs in Catalan to embed.

The leading idea is that EXCs contain a propositional content that is treated as a fact by the speaker, because he/she does not attempt to update the Common Ground by asserting their propositional content. Rather, the speaker modifies the context by contributing his/her attitude towards the fact that some individual is at least as ADJ as a standard degree that is high enough to provoke an emotional attitude in the speaker. For instance:

(355) a. Quina pel·lícula tan entretinguda que vam veure a l'avió!
           'What an entertaining movie we saw!'

       b. ⟦Quina pel·lícula tan entretinguda que vam veure!⟧ =
           1 iff $\exists x[\text{pel·lícula}(x) \wedge \text{veure}(s)(x) \wedge \text{TAN}(\text{entretinguda}(x))(d_i)]$, where the value of
           i is given by the context and it is always high.

(356) Speaker's contribution: He/she shows an attitude towards $^\wedge[\text{TAN}(\text{entretinguda}(x))(d_i)]$.

As has been brought up in the literature on EXCs (see chapter 2), EXCs in English embed in factive predicates. It will be shown that in Catalan this is not possible. Emotive factives do not easily embed *wh*-clauses in general (that is, neither EXCs nor interrogatives), and

cognitive factives introduce *wh*-interrogatives but not EXCs.

5.1   The semantic type of exclamatives

So far EXCs have been treated as a degree construction, parallel to other declarative clauses that contain a degree operator, like result clause constructions or comparatives. As such, the denotation of the entire clause is a truth value and their components impose certain truth conditions that must be met in order to make the clause true. However, EXCs, unlike declaratives, do not assert their propositional content, which is why they are not suitable answers to questions. The goal of this section is to propose a semantic type for EXCs that is compatible with the fact that they resemble other (declarative) degree constructions and with the fact that they have a very idiosyncratic contribution to discourse.

Saebø (2005) argues that EXCs denote propositions (i.e., they are of type $<s, t>$) – and not of type $<t>$ (the type of declaratives). As a matter of fact, he claims that any utterance that denotes a proposition corresponds to an expressive speech act (an exclamative or an optative). That is, he explores the possibility of linking semantic types with speech acts. Here is how he defines an expressive speech act:

(357)   Expression(e)(p)(a)(s): only if e is an utterance of p to a by s designed to communicate to a a modal attitude of s to p.

Where e is an utterance, p is the proposition, a is the addressee and s is the speaker.

According to Saebø (2005), exclamatives are always true propositions (sentences that are true in every possible world), so to make sense of them, they introduce a modal attitude (astonishment, annoyance, joy or marvel). The class of clauses that he considers to be true propositions are ostensively true sentences and necessarily true sentences. By "necessarily true" he means indirect questions (cf. (358)), and by "ostensively true" he means *that*-clauses (cf. (359)).

(358)   How cold it is!

(359)   Que la   foudre   tombe   sur une pareille maison!
        that the lightning fall.SUB on a   similar house

Unlike Saebø, I do not consider ostensively true sentences like (359) to be EXCs – although they might be exclamations –, since these do not necessarily contain a DegP or indicate high

degree, and, also, they can embed in any predicate. I will not assume, either, that EXCs denote propositions that are always true, because I consider that their descriptive content is a fact, in Ginzburg and Sag (2001)'s terms, and truth is predicted of propositions but not of facts. But, along with Saebø, I claim that the speaker contributes his/her attitude to the Common Ground.

5.1.1   A fact

In this subsection I elaborate on the notion of fact and discuss why an EXC should be analyzed as denoting a fact. I take this concept from Ginzburg and Sag (2001). Ginzburg and Sag include facts as primitives in an ontology – which is is reminiscent of the work by Vendler (1968, 1972) – that also contains propositions and questions.

Facts are abstract entities, just like propositions. Unlike more concrete entities (such as events) facts and propositions are not spatio-temporally located and are not easily modified by concrete adjectives. See example (24a) from (Ginzburg and Sag, 2001, 72):

(360)   # The fact that Tony savaged the party has lasted for years / is not limited to London

There are two main properties that establish a distinction between propositions and facts. First, facts have causal powers, whereas properties do not (cf. (361)); and truth is predicted of propositions, but not of facts (cf. (362)).

(361)   Examples from (Ginzburg and Sag, 2001, 73)

    a. The fact that Tony was ruthless made the fight against her difficult.

    b. # The claim/hypothesis/proposition that Tony was ruthless made the fight against her difficult.

(362)   Examples from (Ginzburg and Sag, 2001, 73)

    a. # The fact that Tony was ruthless was true.

    b. The claim/hypothesis/proposition that Tony was ruthless is true/false.

Ginzburg and Sag propose that facts are the kind of entities that factive predicates take as their argument. This goes against previous proposals according to which factives select for propositions. Taking up argumentation in Vendler (1972), Ginzburg and Sag (2001) show how propositional predicates (which they label *true/false predicates*) such as *believe, doubt,*

assume or *prove* satisfy the following inference pattern, but factive and resolutive predicates such as *know, discover, forget, tell, guess* or *predict* do not:

(363) Examples from (Ginzburg and Sag, 2001, 68)

    a. Jean believed a certain hypothesis.

       Hence, Jean believed that that hypothesis is true.

    b. Jean discovered a certain hypothesis.

       It does not follow that Jean discovered that that hypothesis is true.

That is, factive predicates do not directly predict the truth of their complements. Another claim Ginzburg and Sag make is that factive predicates do not treat propositions as genuine arguments, which surfaces in the following test they call *Substitutivity*.

(364) The Fed's forecast was that gold reserves will be depleted by the year 2000.

     (The Fed's forecast is true)

     Brendan discovered/ was aware of the Fed's forecast.

     It does not follow that Brendan discovered /was aware that gold reserves will be depleted by the year 2000.

Compare now (364) with (365):

(365) The Fed's forecast was that gold reserves will be depleted by the year 2000.

     Brendan believes/ denies the Fed's forecast.

     Hence, Brendan believes /denies that gold reserves will be depleted by the year 2000.

We observe in (365) that the nominal complement *the Fed's forecast* can be replaced by the proposition *that gold reserves will be depleted by the year 2000*, so that the sentence that contains a predicate that selects for a proposition (*Brendan believes/denies that gold reserves will be depleted by year 2000*) is entailed by the two previous premises. However, this does not hold in (364), where *Brendan discovered/was aware that gold reserves will be depleted by year 2000* is not a necessary conclusion from the previous premises. This establishes a significant distinction between the type of complements that true/false and factive predicates select. According to Ginzburg and Sag (2001), true/false predicates treat their proposition-denoting complements purely referentially, but factive predicates do not.

What we need to conclude from the previous assumptions is that there is a type called *fact* that is an abstract entity of which truth cannot be predicted. Interestingly, this does not prevent facts from being defeasible, as example (39a) from (Ginzburg and Sag, 2001, 76) shows:[1]

(366)   A: That's such an amazing play!

        B: [yawns] Rather mundane for my taste.

The authors argue that there can be disagreement about what the background facts are and, thus, they can be challenged. Ginzburg and Sag justify this by saying that facthood is defeasible as a result of them being part of a more general type in the ontology, namely, possibilities.

We have seen that indicative *that*-clauses can behave as facts, and it will be mentioned in section 5.3 that interrogatives can be coerced into denoting facts. In addition, Ginzburg and Sag argue that EXCs always denote facts. They propose a few tests that indicate this. First, as stated in chapter 2, EXCs can only embed in factive predicates (cf. *I wonder what a great guy Bernat is.*). Thus, predicates that select for questions (i.e., *ask, wonder*) and predicates that select for propositions (i.e., *believe, claim*) do not select for EXCs.

(367)   Examples from (Ginzburg and Sag, 2001, 78)

        a. # Jo wondered / asked what a runner Dana is.

        b. # Jo believes / claims what an artist Dana is.

Second, they can be used equatively with fact-denoting nominals, but not with question or proposition-denoting nominals:

(368)   From (Ginzburg and Sag, 2001, 77)

        a. The amazing fact I noticed during my visit was how modest all Ruritanians are.

        b. # An interesting claim Mo has put forward is what a reputation Bo has carved for herself among computational ethologists.

        c. # An intriguing question I've been investigating is what a reputation Bo has carved for herself among computational ethologists.

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[1] Note that sentences with an exclamatory intonation are treated as facts.

(368b) indicates that EXCs cannot be identified with propositions, and (368c), that they cannot be treated as questions, either.

Third, the inferential behavior of EXCs resembles that of interrogatives and declaratives when they are embedded in factive predicates (compare (369) with (370)):

(369)   Examples from (Ginzburg and Sag, 2001, 77)

    a. Merle is struck by how incredibly well Bo did in the elections.

    b. Hence, Merle is struck by a fact, a fact that demonstrates that Bo did very well in the elections.

(370)   Examples from (Ginzburg and Sag, 2001, 73)

    a. Jean is aware of / reported / revealed an alarming fact.

    b. The fact is that Brendan has been working hard to destroy the company.

    c. Hence, Jean is aware / reported /revealed that Brendan has been working hard to destroy the company.

Finally, a property that has been brought up in the literature on EXCs and that will be commented on in section 5.2: EXCs cannot be used assertorically. This is example (45a) from (Ginzburg and Sag, 2001, 78).

(371)   # I'd like to make the following claim: What a big building that is.

As will be elaborated on in the following subsection, only propositions – and not facts – have the ability to provide new information. Neither EXCs nor interrogatives can carry out this function.

Admittedly, as will be presented in section 5.3, some of these tests that support the idea that EXCs embed in certain predicates do not have a direct translation in Catalan, because EXCs in Catalan do not embed in factive predicates or in fact-denoting nominals. However, the explanation for this behavior does not depend on their status as fact-denoting, as shall be seen shortly. On the other hand, the data from discourse contribution suggests that, indeed, EXCs do denote facts, because the speaker does not use their descriptive content to update the Common Ground. That is, I interpret EXCs as facts based on the data from their discourse contribution rather on the tests that Ginzburg and Sag (2001) run and which work for English. In saying that EXCs are facts I mean that their descriptive content is not asserted, but located

in the background, because the speaker treats it as the cause of his/her attitude, which is what he/she intends to contribute to discourse. In other words, EXCs are facts because their descriptive content is not given a truth value (which is the main property of propositions), because the speaker takes it for granted.

5.1.2   Not a proposition or a question

So far, it has been argued that EXCs denote facts. Now it is my time to argue that they denote neither propositions nor questions. To do so, I will first present Ginzburg and Sag (2001)'s insight about these two kinds of entities and, afterwards, I will discuss why Gutiérrez-Rexach (1996) and Zanuttini and Portner (2003)'s approaches make incorrect predictions by assuming that EXCs have the same denotation as questions.

Ginzburg and Sag (2001) assume that declaratives generally denote propositions, which are the kind of entity that can be true or false. On the other hand, they take all uses of an interrogative to denote questions. As has been suggested in the previous subsection, both declaratives and interrogatives can be embedded in factive predicates. Ginzburg and Sag explain this behavior by resorting to ambiguity in the case of declaratives, and coercion in the case of interrogatives. More specifically, declaratives may denote propositions or facts depending on the predicate that embeds them, and interrogatives contribute different information when they embed in question-embedding predicates than when they embed in factive predicates. Let us see the evidence Ginzburg and Sag (2001) provide. To begin with, I repeat example (363) to show that declaratives embedded in propositional predicates involve an inference pattern that does not follow when these same declaratives embed in factive predicates.

(372)   a. Jean believed a certain hypothesis.

        Hence, Jean believed that that hypothesis is true.

     b. Jean discovered a certain hypothesis.

        It does not follow that Jean discovered that that hypothesis is true.

We have seen in (364) and (365) that true/false predicates treat their proposition-denoting complements purely referentially, whereas factive predicates do not. Additionally, Ginzburg and Sag claim that propositional predicates impose an appropriateness condition on their

argument such that truth and falsity can be predicted of them. In contrast, when factive predicates embed a declarative, there is a predication of a fact whose associated proposition is taken to be true. Here is how (Ginzburg and Sag, 2001, 74) schematize it:

(373)   Brendan **V**s / has **V**ed (knows / discovered / told me / reported / managed to guess) p.

So, Brendan **V**s / has **V**ed a fact that proves the proposition p.

When it comes to interrogatives, contra Karttunen (1977) on the one hand and Hintikka (1976, 1983); Boër (1978); Groenendijk and Stokhof (1984) and Groenendijk and Stokhof (1997) on the other hand, Ginzburg and Sag propose that they do not always denote questions, but they do not denote propositions, either.

To begin with, interrogatives do not denote questions when they embed in factive predicates. To see why not, Ginzburg and Sag establish a contrast between question-embedding predicates and factive predicates based on two parameters: Substitutivity and Existential Generalization.

(374)   Substitutivity

   a. Jean **asked** / **investigated** / **was discussing** an interesting question.
      The question was who left yesterday.
      Hence, Jean asked / investigated / was discussing who left yesterday.

   b. Jean **discovered** / **revealed** an interesting question.
      The question was who left yesterday.
      It does not follow that Jean discovered / revealed who left yesterday.

(375)   Existential Generalization

   a. Jean **asked** / **investigated** / **was discussing** who left yesterday.
      Hence, there is a question / issue that Jean **asked** / **investigated** / **was discussing** yesterday.
      Which question?
      The question was who left yesterday.

   b. Jean **discovered** / **knows** who left yesterday.
      It does not follow that there is a question / issue that Jean **discovered** / **knows**.

These tests are evidence against Karttunen's idea that interrogatives always denote questions. To get around this obstacle, Hintikka, Boër and Groenendijk and Stokhof agree in claiming that interrogatives embedded in factive predicates denote propositions. However, Ginzburg and Sag (2001) also provide arguments against this claim. The first problem with the previous assumption is that predicates that always select for propositions (propositional predicates such as *believe*) cannot embed interrogatives. This is example (16a) from (Ginzburg and Sag, 2001, 69).

(376)   # Bo supposes / assumes the question / the issue of which pitcher will play tomorrow.

Furthermore, interrogatives cannot be used equatively with proposition-denoting nominals.

(377)   Example (20) from (Ginzburg and Sag, 2001, 71)

     a. The question is who left

     b. The claim is that Bill left

     c. # The claim is who left

And finally, interrogatives cannot be used assertorically. See example (21) from (Ginzburg and Sag, 2001, 71):

(378)   I'm going to make the following claim: # Who left this building / # Did somebody leave this building dirty.

As has been assumed in the previous subsection, factive predicates select for facts and, since they can embed interrogatives, Ginzburg and Sag propose that factive predicates coerce interrogatives to make them denote facts. Realize that interrogatives cannot denote freely facts like declaratives. If they did, (379b) would be acceptable. It is only when they embed in factive predicates that they manage to denote facts.[2]

(379)   Examples (30a) and (30c) from (Ginzburg and Sag, 2001, 74)

     a. The fact is that Tony vanquished the anti-Leninist faction.

     b. # The fact is who vanquished the anti-Leninist faction.

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[2]See (Ginzburg and Sag, 2001, 73–76) for the discussion regarding the ambiguity vs. coercion strategy of declaratives and interrogatives embedded in factive predicates.

We have thus accepted that interrogatives are coerced to denote facts when they embed in factive predicates. But what fact? Ginzburg and Sag suggest that factives predicate something of a fact that constitutes an answer to the question expressed by the interrogative. That is, an answer resolves the question. Here is the scheme:

(380) Brendan has **Vs** / has **Ved** q.

So, Brendan **Vs** / has **Ved** a fact that resolves the question q.

Assuming that EXCs denote facts and do not have the same denotation as questions goes against the strategies that Gutiérrez-Rexach (1996) and Zanuttini and Portner (2003) follow. Hamblin (1973) and Karttunen (1977) consider questions to denote a set of propositions, and Groenendijk and Stokhof (1984) and Groenendijk and Stokhof (1997) treat these clauses as a set of possible worlds – a proposition – when they embed in factive predicates. In both cases (and see also Heim (1994) and Romero (2004)), the propositions are identified with the answers to the question the interrogative clause represents.

Realize that even if we agree that EXCs denote facts, it is still to be shown whether these facts constitute an answer to a question expressed by the *wh*-clause or they have an associated proposition that is proven true. In the literature (Gutiérrez-Rexach, 1996; D'Avis, 2002; Zanuttini and Portner, 2003; Abels, 2005) EXCs have been argued to have the same denotation as questions, but I want to argue that there are reasons to believe that these facts are not answers to questions expressed by the *wh*-clause; instead, I assume that their descriptive content is a proposition.

To begin with, note that the semantics of *wh*-interrogatives seems to be related to their status as questions rather to their status as *wh*-constructions. That is, assuming that EXCs have the same denotation as questions involves making unnecessary stipulations, mainly because EXCs cannot be answered. This is the case of an EXC introduced by *quin-* in Catalan. The example in (381) shows that the same *wh*-phrase may surface as an EXC or as a question. However, EXCs cannot be answered, as is presented in (382).

(381)   a. Quina actriu!

'What an actress!'

b. Quina actriu?

'What actress?'

(382)   a. A: Quina actriu? B: La protagonista d'Alias.

           'A: What actress? B: Alias' main character.'

        b. A: Quina actriu! B: # La protagonista d'Alias.

           'A: What an actress! B: Alias' main character.'

To account for the contrast in (382), an additional feature to block this possibility needs to be postulated (see chapter 2), for example, Zanuttini and Portner (2003)'s claim according to which an EXC bears a FAC morpheme because it is factive. Factivity implies that the speaker already knows the answer to the question associated with an EXC, so it does not make much sense to employ an EXC to ask a question.

Furthermore, the existence of *wh*-words that introduce EXCs and not interrogatives (which are called *E-only* by Zanuttini and Portner (2003)) makes it impossible to assume that EXCs denote a fact that constitutes an answer to the *wh*-interrogative associated with it, since E-only *wh*-words do not introduce *wh*-interrogatives and, hence, questions. This is the case of EXCs introduced by *que* in Catalan:

(383)   a. Que alt que és en Pau!

           'How tall Pau is!'

        b. *Que alt és en Pau?
            how   tall is the Pau

In other words, an account that assumes that the denotation of EXCs have the same denotation as questions needs to deal with the fact that some *wh*-words never introduce questions. In particular, Zanuttini and Portner (2003) propose that these *wh*-words are E-only, but, still, the EXCs they introduce are viewed as denoting a set of alternatives (i.e., of answers to a question).

In contrast, it is easier to account for the behavior of EXCs if we get rid of the idea that their semantics is the same as that of questions. This way, not only can we abandon the factive morpheme and account for the fact that EXCs cannot be answered; it is also straightforward why other characteristics of questions do not apply to EXCs. For instance, EXCs cannot include expressions like *carai* ('in the world') in (384):

(384)   a. *Com carai has jugat!

           'How in the world you played!'

b. Com carai has jugat?

'How in the world did you play?'

Carai may be interpreted as a discourse marker that indicates that the speaker does not know the value of the *wh*-variable and really wants to find it out.

Likewise, I will propose that the lack of *wh*-in situ and of multiple *wh*-EXCs has to do with the fact that they contribute to discourse an attitude towards a degree, which derives from them denoting a fact and from them being unable to update the Common Ground with their descriptive content (see section 5.2 for the details). In particular, an interrogative with the *wh*-word in situ always has an echo effect (i.e., the speaker asks the addressee to clarify what the *wh*-variable means), which has no parallel in EXCs, precisely because the speaker already knows the identity of the *wh*-variable (as will be seen in the following section, a speaker who utters an EXC is committed to its descriptive content). As for the lack of multiple *wh*-EXCs, more data need to be analyzed. Recall the relevant examples:

(385)   a. *Quin home tan alt com corre!
              what   man   so   tall how runs

         b. *Que ràpid que t'has   menjat quina hamburguesa tan gran!
              how   fast   that to.you AUX.you eaten   what hamburguer   so   big

Ono (2004) proposes a syntactic constraint to explain why Japanese has this possibility and English does not. In Japanese, *wh*-words do not move and, thus, they do not violate Relativized minimality in the way English does. The following representation shows the way multiple *wh*-movement would proceed in an EXC:

(386)   wh1 [C [EXC [wh1 wh2]]]

What the previous example illustrates is what happens in languages with overt movement like English. An operator prevents the moved *wh1* from binding its base generated silent copy, and this incurs a minimality problem.

I, on the other hand, do not explain the facts of (385) on syntactic grounds. In particular, I suspect that the impossibility of multiple *wh* in EXCs has to do with the fact that the speaker holds an attitude towards a degree, but he/she cannot experience more than one attitude in the very same utterance. That is, [+wh] turns a declarative into a *wh*-clause, and in the case of EXCs, the speaker shows an attitude towards the degree that is denoted

by the DegP within the *wh*-phrase. Every utterance of an EXC involves a pair of meanings: A fact (its semantic denotation) and the speaker's emotional attitude towards a degree (its discourse contribution), and it seems sensible to assume that each clause involves a discourse contribution in which the speaker shows an attitude towards a single degree.[3]

It is true that in Japanese, multiple *wh*-EXCs are available, but there is only one EXC operator, which is realized by the particle *no da roo*.[4] Since *wh*-words may have a different feature makeup crosslinguistically, it is possible that what *no da roo* and the Japanese *wh*-word contribute corresponds to what the *wh*-word itself contributes in languages like English and Catalan. In other words, the requirement that there be a single EXC operator in Japanese can correspond to the requirement that there be a single *wh*-word in non-*wh*-in situ languages. However, I refer the reader to Ono (2004) and Ono (2006), and leave the detailed explanation and the analysis of a broader range of data for future research.

5.2   Contribution to discourse

So far, it has been argued that an EXC denotes a fact and not a question or a proposition. An important consequence of this claim concerns the speaker's contribution to discourse. The speaker takes the descriptive content of the EXC – which is represented like a proposition – for granted and what he/she wants to contribute to discourse is his/her attitude towards a degree.

In chapter 4 I presented Katz (2005)'s notion of *attitude toward degrees*. What I want

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[3]Interestingly, *quin*-exclamatives can contain two instances of *tan* with their corresponding GAs, but the two *tan*s are coordinated.

(1)   Quina aigua tan bona i tan fresca!
      '(lit.) What a good and fresh water!'

Also, we can have two *que*-exclamatives as long as there is coordination, which suggests that there are two EXCs:

(2)   Que fresca i que bona que estava l'aigua!
      '(lit.) How fresh and how good the water was!'

[4]As a matter of fact, according to Ono (2006), *no* is a finiteness marker, *da* is a focus marker and *roo* is a mood marker. *No* and *da* may appear in interrogatives, but *roo* can only occur in EXCs.

to argue in this section is that EXCs contribute the speaker's attitude towards a high degree, but in this case the attitude is not asserted by means of an ATD modifier (e.g., *surprisingly*, *frustratingly*), but it is inferred from the *wh*-construction. For instance, *surprisingly* in (387) indicates that the degree to which Pau is tall is surprising and if he were taller, it would still be surprising.

(387) $\llbracket$Pau is suprisingly tall$\rrbracket = 1$ iff $\exists d[\text{tall}(p) = d \wedge \forall d'[d' R_{tall} d$
        $\rightarrow \text{surprising}(^\wedge[\text{tall}(p) = d'])]]$
        Adapted from Katz (2005)

In (388) and (389), this effect is a non-propositional contribution to discourse by the speaker. (388b) and (389b) translate the propositional content as stated in chapter 4, and (388c) and (389c) paraphrase the speaker's contribution to discourse.

(388)   a.   Que alt que és en Pau!
             'How tall Pau is!'

        b. $\llbracket$Que alt que és en Pau!$\rrbracket = 1$ iff $\text{TAN}(\text{alt}(p))(d_i)$, where $\llbracket\text{TAN}(d_R)(d_S)\rrbracket = 1$ iff
             $d_R \succeq d_S$; and the value of i is given by the context and it is always high.

        c.   Speaker's contribution: The speaker holds an attitude towards $^\wedge[\text{TAN}(\text{alt}(p))(d_i)]$.

(389)   a.   Quina pel·lícula tan entretinguda que vam veure!
             'What an entertaining movie we saw!'

        b. $\llbracket$Quina pel·lícula tan entretinguda que vam veure!$\rrbracket =$
             1 iff $\exists x[\text{pel·lícula}(x) \wedge \text{veure}(s)(x) \wedge \text{TAN}(\text{entretinguda}(x))(d_i)]$, where the value of
             i is given by the context and it is always high.

        c.   Speaker's contribution: The speaker shows an attitude towards $^\wedge[\text{TAN}(\text{entretinguda}(x))(d_i)]$.

To show that this special contribution to discourse derives from the fact that the clause is not a declarative, but a *wh*-clause, let us look at the restrictions that EXCs exhibit with respect to negation. *Wh*-movement sends *que* (*tan*'s *wh*-counterpart) to the left periphery, and it is always interpreted above negation. It is interesting to observe that, since negation falls under the scope of the *wh*-operator, the result is unacceptable:

(390)   *Que alt que no   és en Pau!
         how   tall that NEG is the Paul
         'How tall Pau isn't!'

Realize that the problem cannot derive from the truth-conditional semantics of the clause; that is, if instead of an EXC, (390) were a declarative, the sentence could be interpretable. As a matter of fact, (391) could be the translation of *En Pau no és tan alt* ('Pau is not so tall'):

(391) $\neg[\text{tall}(p) \succeq d_i]$

   Where the value of i is given by the context and it is always high.

   Actually, (391) can be rephrased as follows:

(392) $\text{tall}(p) \prec d_i$

   Where the value of i is given by the context and it is always high.

The problem has to do with the fact that, as has been assumed, *wh*-movement involves a different contribution to discourse. In particular, the speaker shows an attitude towards the fact that an individual is at least as tall as a high degree. And what happens in (390) is that it seems contradictory for the speaker to hold an attitude towards Pau's degree of tallness if it does not reach the standard that it takes for the speaker to hold an attitude towards this degree.

(393)   a. Denotation: $\text{tall}(p) \prec d_i$

       Where the value of i is given by the context and it is always high.

   b. Speaker's contribution: The speaker holds an attitude toward $^\wedge [\text{tall}(p) \succeq d_i]$.

In contrast, if what is negated is not the degree reached by the individual that has the property, then the results are better. This happens in *quin*-exclamatives, where the individuals under consideration are not degrees, but the individuals in the restriction of the indefinite quantifier. In this case, what is negated is the main verb.

(394)   ?Quin pastís tan bo   que no   t'has   menjat!
       what cake   so   good that NEG to.you.AUX.you eaten
       'What a delicious cake you haven't eaten!'
       (The speaker is eating a piece of a cake that the addressee has refused to eat.)

The example in (394) shows that *quin*-exclamatives can contain negation as well if the context is enriched enough. Here is the paraphrase:

(395)   There is an x such that x is a cake and it is tasty to a degree that at least reaches a standard that is high, and the addressee did not eat this cake & the speaker shows an attitude towards the fact that x's degree of tastiness is high.

Negation is not at odds with EXCs, but it cannot trigger a contradiction with the speaker's attitude. And this only happens when what is negated is the high degree of ADJ-ness that holds of an individual.

All this said, the following subsections deal with the details concerning the contexts in which EXCs can occur. The relevant questions I want to answer in the following subsections are the following: Why are EXCs unable to work as answers to questions? How is conveying an information by means of an EXC different from employing a declarative? What are the parameters that are taken into account by the speaker when he/she utters an EXC? What inferences does the addressee make when he/she hears an EXC? And what is an exclamation?

5.2.1   (In)felicitous cases

It was first pointed out by Grimshaw (1979) that EXCs were not suitable answers for a question. Recall the following example:

(396)   A: How tall is Bill? B: # How tall he is!

Grimshaw argued that EXCs are inherently factive – they presuppose their propositional content – and we cannot answer a question by providing a piece of information that is already presupposed. She makes a parallelism between (396) and (397), from (Grimshaw, 1979, 321).

(397)   A: Did Bill leave? B: # It's odd that he did.

From this starting point – EXCs being unsuitable answers – a broader range of situations will be described in order to reach a generalization that can be linked to the semantic type of EXCs that I have proposed, namely, a fact.

Let us call the first situation *the basketball agent case.* Imagine a basketball agent who meets with a Laker's manager. The agent wants the manager to hire his player, but this is only a promising player who is not very well known. Hence, the agent wants to highlight his main qualities, one of which is his tallness. Compare these two possible speeches:

(398)   a. En Pau és molt alt.
             'Pau is very tall'

b. # Que alt que és en Pau!

    'How tall Pau is!'

(398a) is a declarative clause which seems adequate in this context; (398b) is an exclama-
tive and, even though the semantic content (the high degree of Pau's tallness) coincides with
(398a), this sentence is pragmatically unacceptable. Notice that what is relevant here is the
ignorance on the part of the addressee and his willingness to learn new information.

I present two more situations which are built on the same parameters and incur the same
pragmatic mismatch. One is a case of a linguist who is about to make his first speech as an
invited speaker in the LSA Annual Meeting. He is very nervous, so he wants to know how
many people are in the audience. He asks a friend to go check. When the friend comes back,
she can say (399a) and (399b), but the latter has other implications.

(399)   a. La sala està plena.

            'The room is full.'

        b. # Que plena que està la sala!

            'How full the room is!'

If she utters a declarative sentence like (399a), the linguist understands that his friend
fulfills her task which consisted in resolving the linguist's doubt about the amount of people
in the audience. On the contrary, by uttering (399b), the friend is not worried about the
task she has accepted, but she gives another piece of information: She has had an emotional
attitude because of the large amount of people.

Another situation is one in which a family is meeting with a doctor, who, incidentally, has
bad news to deliver. As in the previous case, the addressees are ignorant about something,
here, the well being of a relative. It is reasonable for the doctor to answer (400a) but not
(400b).

(400)   a. En Joan està molt greu.

            'Joan is very ill.'

        b. Que greu que està en Joan!

            '(lit.) How very ill Joan is!'

If the doctor uttered (400b), then the family would interpret that he does not look after
what they need (to hear how Joan is doing). Instead, they would understand that the doctor

shows an emotion towards information that he has just heard of and that he takes for granted.

Summing up, these cases share the fact that one participant requests an information that the other participant has just learnt, and the only way to satisfy this request is by employing a declarative clause.

There is another situation which resemble the previous ones, but it has a slight change in one parameter. This is the second situation, which can be called *the history teacher case.* Its main characteristics is that the addressees might be uninterested in being acquainted with the data. Imagine a history teacher telling about the Romans, and compare (401a) with (401b).

(401)   a. L'Imperi Romà era molt poderós.

         'The Roman Empire was very powerful.'

         b. Que poderós que era l'Imperi Romà!

         'How powerful the Roman Empire was!'

To utter (401b) is not pragmatically inadequate as long as the students are not eager to know about the Romans. It is odd, nonetheless. The only way (401b) makes sense is if we understand that the teacher wants to gain the students' attention by expressing his attitude towards something that might provoke an attitude to the students if they try to learn about it. By doing so, he is not telling the students that the Roman Empire was very powerful, but he is pretending that he has just read some striking information about what the Romans did and he is expressing the feelings that this reading has caused him. In this situation there are two participants in discourse, one of which does not request an information. Still, the speaker wants to convey some information to the addressee (an audience). By using an EXC, he is not asserting its propositional content, but he is showing an emotional attitude towards the fact that an individual is ADJ to a high degree.

The third situation is *the Ronaldinho case.* In Barcelona everybody knows that Ronaldinho is a magnificent soccer player. A group of friends have gathered in a bar to see a soccer game. See how these two sentences are interpreted:

(402)   a. En Ronaldinho és molt bo.

         'Ronaldinho is very good.'

         b. Que bo que és en Ronaldinho!

         'How good Ronaldinho is!'

(402a) asserts that Ronaldinho is a very good player, but this declarative sentence is not uttered in order to convey an information that is unknown by the participants in discourse. Rather, the speaker utters a sentence that any of the participants in the conversation would be qualified to proffer, because it is mutual knowledge that Ronaldinho is a very good player. In contrast, (402b) conveys different information. Even if the propositional content in (402a) and (402b) is similar (i.e., in both cases Ronaldinho is good to a high degree, even though the semantics of *molt* – 'very' – and *que/tan* – 'so' – are different. See chapter 4, sections 4.1.1.3 and 4.1.2.1.), the speaker who utters (402b) is adding a new information, namely, that this fact leads him to experience an emotion. To recap, in this situation, the relevant parameter that has changed is that the propositional content of the EXC is no longer new information.

The final situation that I will be dealing with is *the hot soup case* (due to X. Villalba, p.c.). Suppose the speaker is holding a bowl full of very hot soup. He/she will probably utter (403b) better than (403a).

(403)   a. Crema molt.
            'This is really scorching.'

        b. Com crema!
            '(lit.) How this scorches!'

Usually, if the speaker is hurting because the bowl is very hot, he/she might not be interested in telling the addressee that the soup is hot. Instead, he/she may want to convey that he/she is hurting because of the soup, and he/she does it by expressing an attitude towards the high degree of hot-ness of the soup, as in (403b). To be able to produce (403a), the speaker must be able to stand the pain and believe that the addressee needs to know the information. The new scenario that this situation contributes is one in which there is a need to express an attitude rather than assert the cause of him/her holding this attitude.

Up to this point, we have taken into account whether or not the addressee requires information from the speaker and whether or not the speaker wants to contribute the propositional content that lies within an EXC. But there is an additional parameter to consider: In all the situations described except for the Ronaldinho case – in which the speaker considers the addressee to be equally qualified to make his/her very same contribution to discourse, as will be dscussed in section 5.2.3 – the speaker utters an EXC as a response to a stimulus.

Although until section 5.2.2 a formalization to this rather commonsense notions will not be given, let us introduce a few generalizations about felicitous EXCs. First, when the addressee requests a piece of information, it must be delivered in a special way. It must be asserted and not treated as a fact about which something is predicted (an attitude, in this case). It cannot be delivered by employing an emotional attitude, either. Otherwise, one could ask *How do you feel about Pau being so tall?* and a plausible answer could be *How tall he is!*. The same would hold if, for example, the speaker asks *How do you feel?* and the addressee responds with a smile. Though in both cases the relevant information is inferred, the speaker must follow some conversational rules to make a felicitous utterance. Second, there are not many cases in which a declarative is infelicitous, because it can be used to add information or just to spell out something that the addressee is equally qualified to proffer. Third, both in EXCs and declaratives, the speaker is committed to the propositional content of the sentence he/she utters, although only in the latter case is this propositional content asserted.

5.2.2   Assertion and fact

In this subsection a pragmatic analysis of EXCs is provided in order to account for the facts described in the preceding subsection. With the aid of the concepts proposed by Stalnaker (1978, 1998) and also Gunlogson (2001) I will show that declaratives and EXCs have important properties in common, but they differ in the way the committed information is presented. Whereas in a (falling) declarative the propositional content is asserted, in an EXC the propositional content is not given a truth value. Rather, it is taken for granted, because the speaker's purpose is not to deliver this information (which is inferred), but to introduce his/her emotional attitude caused by a high degree of ADJ-ness.

Stalnaker (1978, 1998) discusses the two roles of context in the development of a conversation. On the one hand, it is the object in which the conversation takes place (in which the speech acts act, as Stalnaker puts it) and, on the other hand, it is an agent that affects the interpretation of the speech acts that occur in a conversation.

Focusing in the latter role, he analyzes in what way the context is a source of information. According to Stalnaker, a conversation does not start from scratch. There is a set of propositions called *The Common Ground* (CG), which represents a body of information that the speaker presumes is shared by the discourse participants. There is, nonetheless, a

more fundamental way to represent the speaker's presuppositions, which is by means of what Stalnaker calls the *context set*. This is the set of possible worlds compatible with the presuppositions of the participants in discourse. This way of analyzing what the speaker considers to be presupposed information allows Stalnaker to describe the conversational process in terms of its purposes: Since he assumes the goal of a conversation is to exchange information, this also means that its goal is to reduce the context set. In other words, to erase those worlds in the CG that are not compatible with the information that is contributed during the conversation. Specifically, if a conversation is successful, it is expected that this set is reduced whenever a possible world is discarded by the contribution of a participant which turns a possible compatible situation into a non-possible situation. For instance, while no participant in the conversation has stated his/her opinion about, say, the advantages of growing soya in the Amazonian region, both the worlds in which there are many and the worlds in which there is none are in the context set. But when a participant asserts that the cultivation of soya is damaging the ecosystem, then the worlds in which growing soya has many advantages are eliminated from the context set (namely the set of worlds that make the proposition expressed by the assertion by the participant false).

Here is the formalization of each of these concepts:

(404)   From Gunlogson (2001)

   a. Common Ground of a discourse = $\{p \in \wp(W) : p$ is a mutual belief of the participants in the discourse$\}$

   b. Context set of a discourse $=\{w \in W :$ the mutual beliefs of the discourse participants are true of $w\}$

Gunlogson (2001) points out that the beliefs are not only shared, but they are *mutual*, and by that she means that every participant is not only taken to believe p but to be aware that another participant believes p, too.

Finally, the mutual beliefs that the CG includes are not only the propositional content of utterances. The CG also contains propositions contributed by implicatures and, most importantly, mutual beliefs of a general sort, such as the language that will be the vehicle of communication or information about the physical environment in which the conversation is going to take place. Hence, not only speech acts can modify the context set in the course of the conversation. This is going to be relevant for our purposes, since EXCs are not only made

of verbal content, but emotional attitudes play a key role.

On the basis of this approach, Gunlogson (2001) introduces a few changes in order to be able to account for the behavior of rising declaratives, i.e., declarative clauses that are interpreted as questions. Here are the three different clauses that she compares:

(405)   From (Gunlogson, 2001, 1)

      a. Is it raining? (Rising polar interrogative)

      b. It's raining? (Rising declarative)

      c. It's raining. (Falling declarative)

Briefly, falling declaratives commit the speaker to the propositional content of the sentence and the context is biased; rising polar interrogatives commit the addressee to the propositional content and the context is neutral; finally, rising declaratives commit the addressee to the propositional content, but the context is biased. That is, the relevant parameters that are employed to draw the distinction presented in (405) are *commitment* and *bias*. Intuitively, to commit the propositional content of an utterance to a discourse participant means to confer this belief to this participant. And bias applies to a context that presents a proposition p as being easier to become a mutual belief than W–p (the complementary set of worlds, the worlds of which $\neg p$ is true). To formalize these intuitions, Gunlogson needs to approach Stalnaker's assumptions from the point of view of the speaker and the addressee; she separates out the public beliefs attributed to each participant.

(406)   Let $CG_{\{A,B\}}$ be the CG of a discourse in which A and B are the individual discourse participants.[5]

      a. DC_A of $CG_{\{A,B\}} = \{$p: 'A believes p' $\in CG_{\{A,B\}}\}$

      b. DC_B of $CG_{\{A,B\}} = \{$p: 'B believes p' $\in CG_{\{A,B\}}\}$

      Where DC stands for *discourse commitments*, the participants' public beliefs.

At this point it would seem that mutual and public beliefs should coincide. But as will be clear very shortly, every mutual belief is a public belief, but a public belief does not have to be mutual.

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[5]Realize that this is a more articulated definition of the former definition of CG given in (404). As (Gunlogson, 2001, 42) points out, the definition in (404) is still derivable from the new one: $\{p: p \in DC_A \wedge p \in DC_B\}$.

(407)   Let DC$_A$ and DC$_B$ be sets of propositions representing the public beliefs of A and B, respectively, with respect to a discourse in which A and B are the participants, where:

    a. p is a public belief of A iff 'A believes p' is a mutual belief of A and B.

    b. p is a public belief of B iff 'B believes p' is a mutual belief of A and B.

In the same line, the author reformulates the former notion of *context set* to separate out the public beliefs attributed to the participants, which become the union of each participant's commitment set:[6]

(408)   Let a discourse context C$_{\{A,B\}}$ be $< cs_A, cs_B >$, where:

    a. A and B are the discourse participants

    b. cs_A stands for *the commitment set of A* (the set of worlds of which that individual's public beliefs are true)

    c. cs$_A$ of C$_{\{A,B\}}$ = $\{w \in W$: the propositions representing A's public beliefs are all true in $w\}$

    d. cs$_B$ of C$_{\{A,B\}}$ = $\{w \in W$: the propositions representing B's public beliefs are all true in $w\}$

What is most interesting is that, with this approach, a situation can be captured in which a public belief is not a mutual belief, which leads to the definition of *bias*. Gunlogson presents two cases. The first one involves participant A and participant B disagreeing on a certain point. For example, A believes q ('cats make better pets than dogs') and B believes W–q ('cats do not make better pets than dogs'). Here, neither q nor W–q are mutually held propositions – although the fact that A believes q and that B believes a proposition entailing W–q are in fact mutual beliefs (in accordance with (407)). Consequently, neither q nor W–q can become a mutual belief unless A or B revises his/her position. Hence, at this moment, q and W–q are controversial with respect to a discourse context C. Here is the formalization of the concept of being controversial:

(409) p is controversial in C iff W–p is a commitment of at least one discourse participant, p is unresolved in C, and C is not empty.

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[6]That is, the former definition of *context set* is recoverable from $< cs_A, cs_B >$. Gunlogson defines it as the set of worlds of which all mutual beliefs of A and B are true (cs$_A$ $\cup$ cs$_B$).

Where p being unresolved means that neither p nor W–p is a joint commitment, i.e., that at least one participant is not committed to p

The second example of a public belief that is not a shared belief is a case in which one of the participants has not spelled out his/her position of agreement or disagreement with regard to q ('cats make better pets than dogs'). In this situation, q is not a mutual belief and neither is W–q. But the status of both propositions is different, because for q to become a mutual belief it only takes ratification, whereas W–q is not eligible as a mutual belief, because A has already expressed commitment to q. This is a context which is *biased* towards q. Formally:

(410)   a. C is biased toward p iff W–p is controversial in C and p is not controversial in C

          b. C is neutral with respect to p iff neither p nor W–p is controversial in C

Recall that falling declaratives are considered to commit the speaker and induce a biased context, whereas interrogatives commit the addressee and are neutral, and rising declaratives commit the addressee but induce bias. It is time that we went over the tests for commitment and bias and prove that EXCs, like declaratives, commit the speaker and involve a biased context.

As far as commitment goes, Gunlogson (2001) wants to show that falling declaratives commit the speaker, whereas interrogatives and rising declaratives commit the addressee. To do so, she runs a test in which it becomes clear that rising declaratives pattern with interrogatives in committing the addressee. It is her example (49):

(411)   Was the food good in jail?

(412)   The food was good in jail?

(413)   # The food was good in jail [# as an attempt to convey that the Addressee has been in jail]

Here, the use of a subjective evaluative adjective (*good*) implies that one of the participants must have experienced being in jail (in order to be able to say whether it is good or bad). Both in (411) and (412), the person supposed to have been in jail is the addressee, whereas in (413) it is the speaker. Now compare its exclamative counterpart:

(414)   Que bo que era el menjar de la presó!
        'How good the food in jail was!'

Clearly, the assumption in (414) is that the speaker has been in prison, not the addressee, which suggests that an EXC also commits the speaker. [7]

To test bias,[8] [9] according to the definition given above in (410), it is certain that whenever the speaker utters an EXC, the only chance for p to become a mutual belief is for the other participant to agree with it. If he/she disagrees, then p is not going to be a mutual belief, since A believes p and B believes W–p. For instance:

(415)   a. A: Que entretinguda que ha estat la pel·li! (p: The movie was at least as enter-
            taining as a standard degree that is high)
            'A: How entertaining the movie was!'

        b. B1: Sí, ha estat molt bona.
            'B1: Yes, it's been very good.'

        c. B2: Doncs jo l'he trobada horrorosa. (W–p)
            'B2: I think it was awful.'

In the situation depicted above, at moment (415a), since the context is biased towards p, the only chance to obtain a mutual belief is for speaker B to agree with p. If he/she believes W–p, then, a mutual belief can only be obtained if one speaker rectifies his/her position (if they accept that Pau is tall to a high degree or that he is not).

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[7]As shall be seen in the following subsection, when there is a request for confirmation, then the addressee is also committed.

[8]There are a few additional bias markers due to Huddleston (1994), such as the use of expressions like *of course, no doubt, surely*, of evidential adverbs or *therefore*. However, these markers do not seem to be usable to EXCs, as the following examples show:

(1)   a. ?How tall he surely is!

      b. ?How tall he evidently is!

      c. ?Therefore how tall he is!

Also, the impossibility for declaratives to license NPIs is viewed as evidence for bias.

(2)   *How tall anybody is!

[9]Gunlogson (2001) attributes the lack of inversion in declaratives to be a bias marker – whereas rising intonation shows that the addressee and not the speaker is committed. As a suggestion, it could be explored whether the lack of inversion in EXCs can be analyzed likewise.

To summarize, it has been shown that EXCs commit the speaker to their propositional content and they involve bias. However, they do not behave like declaratives, as has been exposed in the previous subsection. I want to argue that commitment and bias are not enough to draw a distinction between EXCs and declaratives. To do so, I take up again the subject of what the point of a conversation is.

According to Stalnaker (1998), the goal of a conversation is to increase the mutual knowledge and that it involves the reduction of the context set (the worlds that are incompatible with what the participants believe are eliminated from this set). Now, when a speaker utters an EXC, is his/her intention to reduce the context set by eliminating those worlds that are incompatible with what the propositional content of the EXC states?

I argue that it is not. As has been advanced in preceding sections, I consider that the descriptive content is always a fact and, although the information contained in this fact is inferred by the addressee, the purpose of the speaker when uttering an EXC is not to assert its content but to update the CG by introducing his/her emotional attitude towards a degree. Context can be modified not only by speech acts. I stand by this assumption and claim that the speaker wants to reduce the context set by introducing non-verbal information which is his/her attitude towards the fact that an individual is at least ADJ to a high degree. Most importantly, showing an emotional attitude is a means of updating the CG, but it is not a valid way to satisfy the addressee's requirement for information when he/she wants to obtain asserted information.

What then is the difference between a declarative and an EXC in pragmatic terms? A rather obvious difference is that EXCs are uttered most of the times as an immediate response to a stimulus,[10] which is not a requirement for declaratives; since EXCs involve entertaining an emotional attitude, there is a pragmatic condition of immediacy. That is, the speaker will not usually feel distant from the stimulus that has caused him/her the attitude.

But there is a more substantial difference, one that can draw a distinction between these two examples:

(416)   a. How tall Pau is!

          b. It's amazing how tall Pau is.

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[10]Except when the speaker makes such an utterance thinking that the addressee is equally able to make this contribution, as will be seen in the cases where request for confirmation is allowed.

(416a) is an EXC, whereas (416b) is a declarative clause (which appears to contain an embedded EXC – see section 5.3, though.). The addressee of both these utterances understands that the speaker experiences an attitude towards a degree, but in (416a), this emotional attitude is a non-verbal speech act and in (416b) it is asserted by means of an emotive predicate. This is not trivial, because when a participant commits the addressee to a propositional content – for example in questions, where the speaker confers the knowledge of a piece of information to the addressee – the requirement of information needs to be satisfied by means of an assertion.

This is a result of the property of EXCs of being facts. Facts, like propositions, have a descriptive content, but it is located in the background; it is not asserted. The intention of the speaker when uttering an EXC is not to modify the context set by contributing this content, but by contributing an emotional attitude that is caused because of this fact. Since the speaker does not have the intention to reduce the context set or, more precisely, the commitment set of the addressee with this factual information, EXCs are unsuitable as answers and as responses to any situation in which the speaker publicly commits the addressee to the propositional content of an utterance. So, in every case where a participant A commits participant B to a proposition, an EXC is not adequate. In contrast, a declarative is uttered to reduce the commitment set of the addressee by eliminating those worlds that are incompatible with its propositional content. That is why they are suitable answers.

If we go over the situations presented earlier in section 5.2.1, the effects of EXCs can now be explained. In the basketball agent case (where the basketball agent wants his player to be hired by an important team), the inadequacy of using an EXC (*How tall Pau is!*) has to do with the fact that there is an implicit request for information (the managers of the Lakers want to learn about Pau's strengths), but with an EXC, the speaker does not intend to reduce the commitment set of the other participant by erasing the worlds incompatible with the propositional content of the EXC. That is, when the agent utters an EXC, the managers understand that Pau is tall to a high degree, but the information is not delivered in the appropriate way. By contrast, if the agent uses a declarative, he wraps the information in the proper way to reduce the commitment set of the addressee, because assertions have this purpose. Furthermore, uttering an EXC may imply that the speaker is responding to a stimulus. For example, that he has just realized that Pau is very tall, which would not be

adequate if the speaker is his agent. Or else, it may imply that he considers the managers to be equally able to make this contribution to discourse, which contradicts the fact that they are requesting this information; that is, their role is to be informed about something they ignore.

In the history teacher case (the history teacher is talking about how powerful the Roman Empire was), since at least some students might not be publicly committing the teacher to providing a particular propositional content (i.e., they might not be interested in learning about the Romans), the use of an EXC like *How powerful the Roman Empire was!* is not completely odd. However, there are at least two ways in which using an EXC is not adequate. First, by uttering an EXC, the teacher conveys that he has just realized the high degree to which the Roman Empire was powerful. This is a consequence of the response to stimulus property mentioned above. Clearly, a history teacher is not expected to learn the information at the moment of utterance, so it is inadequate to use an EXC. Second, since the socially expected role of a history teacher is to convey information about, say, the Roman Empire, employing an EXC seems artificial, because this teacher would be telling the students that he feels astonished because of the Empire's power. Though the students infer that the Roman Empire must have been very powerful, they would also understand that the teacher's purpose in using an EXC is not to deliver this descriptive content, but to show his attitude, which is not his role as a teacher.

In the Ronaldinho case (where the fact that Ronaldinho is a great soccer player is mutual knowledge), uttering an EXC like *How good Ronaldinho is!* makes sense, because there is no implicit commitment of any of the participants to another participant to provide information (no one is supposed to be in possession of a certain information that the others wish to know about). On the other hand, it is understandable that looking at Ronaldinho play, one of the participants wants to show his/her amazement at Ronaldinho's qualities as a soccer player.

Finally, the hot soup case (where the speaker is hurting because he is carrying a bowl of hot soup) is the only situation in which an EXC is more suitable than a declarative with the same propositional content. Since the bowl is hurting the speaker's hands, it makes sense to make an utterance which contributes the speaker's feelings about this fact rather than an utterance which has the goal to fill in another participant on the degree of heat of the soup bowl. That is, the speaker does not want to inform the addressee that the soup is hot, but

he/she wants to convey the information that he has an attitude towards the degree of heat, which is the cause of his pain. Clearly, uttering *How hot this bowl is!* is a more efficient way to achieve this goal than saying *I'm hurting because this bowl I'm carrying is very hot.* The possibility of having these two options arises from the fact that the addressee is not committing the speaker to provide a propositional content. If he/she asks *What's going on?*, then only the declarative will be felicitous.

A further interesting question is to discuss whether there is any difference between this proposal and Zanuttini and Portner (2003)'s. I want to argue that they are similar, but have relevant differences. I will discuss two aspects in which the two proposals differ: First, they assume that the propositional content of an exclamative is presupposed rather than in the background, and, second, whereas they identify widening as a sentential force, I do not relate high degree semantics with the discourse contribution of EXCs.

Regarding the first issue, Zanuttini and Portner (2003) argue that EXCs are factive because part of their meaning is presupposed. In particular, they claim that what is presupposed is the truth of the propositions that are contained in the widened quantificational domain that arises in virtue of the appearance of widening (see also chapter 2). This presupposition is not only understood as semantic presupposition, but also as pragmatic speaker presupposition (Stalnaker, 1974). That is, Zanuttini and Portner understand that this propositional content is part of the CG and, as such, it is not asserted. On the other hand, I consider that EXCs include a descriptive content which is treated as a fact and, as such, it cannot be asserted. It is not asserted not because the speaker presumes that the discourse participants are acquainted with this information, but rather, because the speaker is not interested in updating the CG with this descriptive content. He/she uses the descriptive content of the EXC as a fact that has caused him/her an emotional attitude, and this attitude is what the speaker wants to contribute. Consequently, the speaker does not treat the descriptive content of the EXC as being part of the CG because he/she believes it is obligatorily true (as would be the case if it was semantically presupposed). Instead, since his/her intention is to update the CG by contributing his/her attitude towards a degree, the descriptive content of the EXC lies in the background. Now, whether or not a fact construed as backgrounded information is necessarily part of the CG is to be discussed in future research.

There is a related issue that is worth being commented on. The part of the meaning that

is presupposed in Zanuttini and Portner (2003)'s proposal and that is treated as a fact in my proposal are not the same. In Zanuttini and Portner's work, it is a proposition that lies at the extreme end of a set of propositions that is created by means of a pragmatic inference called *widening*. In contrast, in my account, the descriptive content is a fact that derives from a proposition that includes a degree word that merges with a gradable predicate, and the degree that is made reference to is high.

The second crucial difference between my proposal and Zanuttini and Portner (2003)'s is that Zanuttini and Portner treat the expansion of the standard domain of quantification (which formalizes the scalar implicature that is claimed to arise) as the way an EXC updates the CG. I, on the other hand, treat high degree (which roughly corresponds to the meaning Zanuttini and Portner want to formalize with widening) as part of the descriptive content of EXCs in Catalan, which – as just mentioned – is treated as a fact and, hence, it is not used to update the CG. Additionally, I do not relate the informational status of the descriptive content of an EXC to its sentential force. In my account, the fact that the descriptive content of an EXC involves high degree does not have any consequence on the sentential force of the clause and in the way EXCs update the CG. What matters is that their descriptive content is a fact and, as such, it cannot be asserted, which means that something else is used to update the CG. In my proposal, it is the speaker's attitude towards a degree.

5.2.3   Request for confirmation

The characterization of EXCs usually includes the fact that they cannot be used as questions (cf. Zanuttini and Portner (2000, 2003)). Nevertheless, a speaker can ask for confirmation when he/she utters an EXC. In Catalan, asking for confirmation is realized by means of the particles *oi?*, *eh?* or *veritat?*, which are analogous to tag questions.

(417)   Que alt que és en Pau!, oi? / eh? / veritat?

'How very tall Pau is, isn't he?'

The possibility of asking for confirmation is not trivial, and it will give us relevant information about the meaning of EXCs. I will argue that the possibility of adding a confirmation particle to an EXC has the pragmatic effect of expressing that the speaker believes that the addressee is equally qualified to utter an EXC. Consequently, the speaker's goal here is not to update the CG by contributing new information. Interestingly, declaratives can also carry

out this pragmatic function, as Gunlogson (2005) proposes.

To begin with, not only EXCs, but also declaratives can include request for confirmation particles.

(418)   En Pau és molt alt, oi? / eh? / veritat?
        'Pau is very tall, isn't he?'

There is another way to formulate them that involves placing the particle at the beginning of the clause, so the question takes scope over all of it. However, this move is banned in EXCs.

(419)   a. Oi / eh / veritat que en Pau és molt alt?
            'Isn't it true that Pau is very tall?'

        b. *Oi / eh / veritat que alt que és en Pau!
            '(lit.) Isn't it true that how very tall Pau is!'

This constraint has to do with the fact that *wh*-exclamatives cannot be introduced by the complementizer *que*. That is, the presence of confirmation particles suggests that EXCs with *oi?* are actually instances of embedded EXCs like the ones to be discussed in section 5.3.3, although with a slightly different surface form.

In this subsection I argue that *oi?* is a bias marker, but it is also supposed to be a test to prove that an expression denotes a proposition, insofar as *oi?* involves trying to predicate truth of the descriptive content of the sentence. At least, this is the effect it has when it is added to a declarative clause.

(420)   a. La Grace no ha arribat tard, oi?
            'Grace isn't late, is she?'

        b. Isn't it true that *p*?

        c. *p*: Grace isn't late.

This is not what we want, though. Recall that we have been assuming that EXCs denote facts. I do not want to claim that they denote propositions whenever they are embedded. What I will argue is that request for confirmation particles are not exactly tests for proposition-hood. Instead, they test whether or not the speaker wants to update the CG by adding new information. Specifically, when the sentence allows for this particle to occur, then

what the speaker does is contribute information that he/she believes the addressee is equally qualified to contribute.

This kind of contribution is analyzed by Gunlogson (2005), who claims that declaratives are not be used assertorically in some situations. Let us sketch very briefly how Gunlogson (2005) shows that not all declaratives are assertions. Crucially, the speaker may use a declarative to contribute information that is already mutual knowledge. Here are a few tests:

(421)   It's a beautiful evening for a walk [Said to a companion in same locale]

(421) is an example of a declarative that is not used to reduce the commitment set of the addressee (as would be expected if it were an assertion, in Stalnaker (1978)'s terms). In this particular situation, the speaker believes that the addressee is equally qualified to make the statement that he/she has already made. Technically, Gunlogson (2005) describes the speaker's view of the addressee in the following way:

(422)   a. The speaker believes that p

      b. (The speaker believes that) the addressee believes p or believes $\neg\,p$ (or at least is capable of forming such belief)

      c. The speaker does not necessarily know which of p or $\neg\,p$ the addressee inclines to

The sentence in (423) shows a pragmatically odd question to be answered with the previous declarative, since the speaker believes that the addressee is not uninformed.

(423)   What's the weather like?

What (424) presents is what the answer *yes/no* from the addressee means in this context. In particular, neither *yes* nor *no* is an acknowledgement on the part of the addressee of his/her previous ignorance. That is why the comment *Oh, I didn't know that* is pragmatically odd. Instead, these are used to either confirm that he/she believes p or to contradict this belief.

(424)   B1: Yes, let's go/ No, it's not B2: # Oh, I didn't know that

Finally, Gunlogson takes the possible presence of a tag question – which leaves the meaning of the declarative unchanged – as further evidence that these declaratives are not assertions.

(425)   It's a beautiful evening for a walk, isn't it? [Said to a companion in same locale]

The analogy between these non-assertive declaratives and EXCs with request for confirmation is clear. Interestingly, here, the question tag is used as evidence in favor of treating these declaratives as non-assertive. Likewise, EXCs can not include the confirmation marker and still convey the same information as one including the question tag, as is claimed by Gunlogson (2005).

(426)   Quin vespre tan bonic per fer un tomb!, (oi?)
        'What a beautiful evening for a walk!, (isn't it?)'

In these non-assertive declaratives, the speaker is committed to p and expects the addressee to be either committed to p or $\neg p$. In contrast, in EXCs that may include *oi?*, the speaker is not only committed to the descriptive content underlying it, but he/she also believes that the addressee is equally willing to utter an EXC in which he/she shows an attitude caused by the high degree of ADJ-ness of an individual.

To conclude, let us raise a final issue with respect to the interpretation of *oi?*. Ginzburg and Sag (2001) make use of similar tests to prove propositionhood. Interrogatives – which are claimed not to denote propositions – fail to be acceptable in the following examples:

(427)   Examples from (Ginzburg and Sag, 2001, 84)

        a. I wish to make the following claim: # Did Bo leave?

        b. # It is true/false whether Bo left.

Now, *oi?* could be translated as *Isn't it the case that...*, which makes this locution very similar to *It is true/false* in (427b). However, under the interpretation of confirmation markers proposed in this subsection, the possibility that questions contain these particles should not necessarily banned. I claim that this is the case, that they indeed acceptable in the appropriate context.

At first glance, interrogative clauses cannot include *oi?* and object-denoting expressions, such as DPs, only can include them when they are interpreted as fragments of sentences.

(428)   # Qui ha vingut, oi?
        'Who came, right?'

(429)   Una cadira, oi?
        'A chair, isn't it?' (as in 'Isn't it true that a chair is missing?')

But the oddity of interrogatives with the presence of a confirmation marker could well have to do with the fact that *oi?* is a bias marker, so it is incompatible with questions, which are assumed to be neutral. Nevertheless, it is predicted that rhetorical questions, which are not neutral but biased, are acceptable with *oi?*. This is borne out, as the following example illustrates.

(430)   Qui ho havia de dir, oi?

       'Nobody would have said it, right?' '(lit.) Who had to say it, isn't it?'

5.2.4   Other types of exclamatives

So far, the distribution of EXCs has been described and I have concluded that it is very restricted. On the one hand, they commit the speaker (and not the addressee) and they induce bias, like any declarative. But, on the other hand, they cannot be used to satisfy an addressee's request for information, because what matrix EXCs contribute is an attitude that is caused by a degree of ADJ-ness that is held by an individual x. The clause that contains this information is in a background and it represents the cause of the speaker's emotional attitude.

If this is a property that identifies EXCs, it is expected to be shared by other clauses that are out of the scope of this thesis, which seem synonymous with the ones that have been analyzed here. Nevertheless, this does not seem to be so, which suggests that the *wh*-component determines the contribution to discourse of EXCs, and that, if we treat discourse contribution as an essential part of the meaning of EXCs, then the rest of alleged exclamatives should not be considered as such.

I will first start with DP-exclamatives, which will be mentioned in the discussion of embedded EXCs. I will propose in section 5.3 that they can embed in factive predicates because they are degree relatives that behave as concealed propositions, but they can also stand on their own with the appropriate intonation.

(431)   a.   *Lu* alt que és en Pau!

          '(lit.) The tall that Pau is!'

Even though they refer to a high degree of tallness (which is suggested by the speaker's intonation), these constructions cannot be the answer to a question about the degree of ADJ-

ness, like EXCs.

(432)   A: Com és d'alt en Pau? B: # *Lu* alt que és!

‘A: How tall is Pau? B: # The tall he is!’

The high degree supporting the speaker's attitude and the analogy in distribution shown in (432) bring these DP-exclamatives and EXCs very close. However, they differ in a few aspects. To begin with, DP-exclamatives are not naturally uttered as a response to an immediate stimulus.

(433)   # *Lu* ple que està l'estadi! [The speaker has just looked at the stadium, which could not be fuller]

However, this sentence is adequate if the speaker has a conversation afterwards and one of the participants mentions the stadium; for instance, it is under discussion whether this will be a memorable game. Participant A doubts that it will be, and B utters (433). The interpretation would be *[You don't know] how very full the stadium is*. Analogously, DP-exclamatives in English such as *The things Mary eats!* (see Portner and Zanuttini (2003)) would not be proffered in front of Mary, as she was eating. Probably, the speaker would be telling another participant about Mary later on, once the first impression was over, and the meaning would be as in the preceding example: The attitude of the speaker could be translated by a predicate of the sort *You can't imagine, it's amazing*, and the like. As a matter of fact, I would like to point out that the meaning contributed by the factive predicate is what the intonation contributes in DP-exclamatives. This has as a consequence that both constructions should be unacceptable as answers to questions about the degree of ADJ-ness, which I believe is borne out, though the fact that DP-exclamatives are worse may be due to the non-declarative intonational pattern (but I shall leave this issue for future research).

(434)   A: Com és d'alt en Pau? B: ?No t'imagines/és increïble *lu* alt que és

‘A: How tall is Pau? B: You can't imagine/it's amazing how tall he is.’

Since what the speaker asks for is a proposition that contains a (more or less vague) degree expression referring to Pau's degree of tallness and, by contrast, he/she obtains the assertion of the other participant's emotive attitude towards this degree, the answer is not completely felicitous (though the speaker who asks the question can infer the information that he/she

wishes to obtain). This, in turn, suggests that such a construction should be a relatively fine answer for another kind of question, which is also borne out.

(435)   a. A: Saps res de l'Antonio?

'A: Have you heard from Antonio?'

b. B1: No t'imagines el temps que fa que no el veig

'B1: You can't imagine how long it has been since I have seen him

c. B2: El temps que fa que no el veig!

'B2: (lit.) The time it does that I don't see him!'

There is another interesting type of exclamative in Catalan, which is introduced by a complementizer and which contains a sort of partitive clitic (see Villalba (2003)). These two clauses seem synonymous at first glance.

(436)   a. Que alt que és en Pau!

'How tall Pau is!'

b. Que n'és d'alt en Pau!

'How tall Pau is!'

(436b), like a regular EXC, can be an emotional response to Pau's high degree of tallness, a spontaneous consequence of a stimulus (unlike the DP-exclamatives just mentioned). It is unclear whether their semantics should include the null relational degree word *tan*, but what should be highlighted is that they can be employed as answers in certain contexts, where EXCs would not be available.

(437)   A: Saps res de l'Antonio?

'A: Have you heard from Antonio?'

(438)   B1: Que en fa   de temps que no   el veig!
         B1: that CL does of time   that NEG CL see.I
         'I haven't seen him for such a long time!'

(439)   B2: # Quant de temps que fa que no el veig!

'How long it has been since I haven't seen him!'

Interestingly, these constructions (which resemble French exclamatives), unlike DP-exclamatives, are unembeddable (they can include a confirmation marker, though). And the regret-flavor

that (438) has cannot be attributed to a null selecting predicate like *It's amazing* or *You won't believe.*

Whatever the explanation is for this variation in the pragmatic distribution (which cannot be dealt with in this thesis), it is enough to realize that EXCs contain a set of properties that other similar constructions do not share completely. This leads us to suspect that the *wh*-element does have a pragmatic effect that cannot be replaced by other elements, which, in turn, suggests – as Zanuttini and Portner (2003) claimed – that not every clause that contains an exclamatory intonational pattern is an EXC.

5.2.5   Exclamatives and exclamations

In this subsection I want to address the issue of the relationship between the terms *exclamative* and *exclamation* and, more particularly, what characterizes an exclamation.

In previous subsections assertive speech acts have been defined opposite to question speech acts according to two parameters, namely, commitment and bias. We have then shown that they are not enough to draw a distinction between assertions and the pragmatic behavior of EXCs. A question then arises as for whether exclamative speech acts (exclamations) are to be defined according to the same parameters as assertions and questions or whether it makes sense at all to posit a kind of speech act that covers not only the contribution to discourse of EXCs, but also the contribution of other types of clause.

Let us review cases of declaratives that can be uttered with an exclamative intonational pattern. To see whether these parallel EXCs, we can start by examining how they react to the situations set up in section 5.2.1.

(440)   a.   A: Com és d'alt en Pau? B: És molt alt!
             'A: How tall is Pau? B: He's very tall!'

        b.   En Pau és molt alt!
             'Pau is very tall!' (The basketball agent case)

        c.   L'Imperi Romà era molt poderós!
             'The Roman Empire was very powerful!'(The history teacher case)

        d.   En Ronaldinho és molt bo!
             'Ronaldinho is very good!' (The Ronaldinho case)

e. La sopa crema molt!

'The soup scorches!' (The hot soup case)

The exclamative intonation that accompanies these declaratives describes that the speaker does not hold a neutral attitude towards the propositional content of the sentence or towards another aspect related to the context of utterance. Hence, depending on what is the source of the attitude, the latter examples are adequate utterances. For example, (440a) has a plausible interpretation, one in which the speaker who answers is amazed at the fact that the addressee does not know Pau's tallness and he/she responds showing an attitude towards this fact. Or in (440c), the teacher may be speaking up so a student pays attention. That is, the intonation does not represent an attitude towards the propositional content of the clause, but has a wider range of interpretations, unlike what is the case for EXCs. Be that as it may, a declarative with an intonation does not wrap its propositional content as a fact. Otherwise, it could not be employed to answer a question, and they can:

(441)   A: What's going on? B: Woody survived!

Where B shows an attitude toward the fact (in the pre-theoretical sense) that Woody survived. This may show that an exclamative intonation is not at odds with the possibility for a clause to make a good answer. What matters is that a speaker can make use of a declarative with an exclamatory intonation to convey propositional content. In contrast, EXCs do not have this option. Whereas in the preceding example, B can express his/her attitude and also reduce A's commitment set by the propositional content of this declarative, this is not possible for EXCs.

Another issue is whether degree constructions that contain *tan* and a pending intonation are to be construed as exclamations. For instance:

(442)   En Pau és tan alt!

'Pau is so tall!'

Interestingly, English does not seem to pattern like Catalan. It is not only that their intonation differs. They seem to have different discourse distribution. At least according to Zanuttini and Portner (2003), the following dialogue is possible.

(443)   A: Is he cute? B: He's so cute.

In contrast, it is infelicitous in Catalan:

(444)   A: És guapo? B: # És tan guapo!

I do not treat these clauses as EXCs, but rather as result clause constructions whose result *that*-clause is not spelled out, whence the pending intonation.

(445)   En Pau és tan alt que arriba al sostre.
        'Pau is so tall that he reaches the ceiling.'

Although this may be right, note that a regular result clause construction is a suitable answer, whereas a result clause construction with a pending intonation is not.

(446)   A: És guapo? B: És tan guapo que tothom el mira.
        'A: Is he cute? B: He's so cute that everybody looks at him.'

I interpret these facts in the following way: Pending intonation does not make for a felicitous answer. However, this does not mean that result clause constructions with pending intonation do not update the CG just like assertory declaratives.

Both sets of examples would be considered exclamations, because they involve an attitude on the part of the speaker. That is, irrespectively of whether or not the speaker's purpose is to contribute the descriptive content of the clause or rather his/her attitude, they all share the property that the speaker is emotional when uttering these sentences. However, aside from the speaker's attitude and the emphatic intonation, there does not seem to be any other relevant property that EXCs – the *wh*-clauses analyzed in this thesis – and exclamations in general – any clause type with an exclamatory intonation – have in common. While assertions and questions are defined according to parameters such as commitment and bias, exclamations seem to be defined by different parameters. I leave the issue of how exclamations should be approached with respect to assertions and questions for another occasion.

5.2.6   Summary

In this section the pragmatic component of EXCs has been analyzed. Specifically, their contribution to discourse has been examined in light of the theories developed by Stalnaker (1978, 1998); Gunlogson (2001) and Gunlogson (2005).

It has been observed that EXCs behave like declaratives in committing the speaker to their propositional content and in inducing bias. However, unlike regular assertions, they are not uttered to reduce the commitment set of the addressee by eliminating the worlds that are incompatible with the descriptive content that underlies an EXC. Two cases have been studied: One in which what the speaker contributes is his/her attitude towards a degree of ADJ-ness of some individual x; and another one, which usually involves a confirmation marker, in which the speaker considers that the addressee is equally qualified to contribute the information that underlies an EXC. Crucially, these two conditions make EXCs unsuitable as answers to questions, one of the main facts that had to be accounted for.

Finally, it has been pointed out that perhaps not every exclamative type of clause (including those that are not examined in this thesis) shares the behavior of *wh*-exclamatives, and I have discussed whether the label *exclamation* should parallel *assertion* and *question* as a speech act identifier. The conclusion is that the former might not be comparable, because what this label comprises is a set of structures that share the fact that the speaker has an attitude. On the other hand, labeling a clause an assertion or a question depends on parameters like commitment and bias.

5.3   Embedded exclamatives

In the previous section I have dealt with the main consequence of EXCs denoting facts, namely, that they do not update the Common Ground by contributing their propositional content. In this subsection, I try to answer the following question: If EXCs denote a fact, why do they not embed in factive predicates in Catalan? In this section I also discuss the status of embedded EXCs and the crosslinguistic differences that arise between Catalan and English.

This subsection has three main divisions according to the type of embedding predicates, namely, emotive factives, cognitive factives and perception verbs. As shall be seen very shortly, in Catalan, only certain forms of perception verbs embed EXCs like the ones analyzed in this thesis. I will claim that only perception verbs in the imperative mood, in a polar interrogative or in the future tense are able to introduce a *wh*-clause and convey the speaker's attitude towards a degree, which are the sole circumstances in which EXCs will embed in Catalan. In contrast, emotive factives embed propositions and concealed propositions represented by DPs, but not *wh*-clauses, and cognitive factives do select *wh*-clauses, but are unable to express the

speaker's emotive attitude towards a degree. Interestingly, these restrictions concern Catalan, but not English.

5.3.1   Emotive factives

In this subsection I show that EXCs in Catalan do not embed in emotive factives, which poses a puzzle if we want to maintain that EXCs denote facts. Also, I will show that *wh*-interrogatives do not embed in these predicates, either, which suggests two possible explanations: (1) this mismatch has to do with a different syntactic subcategorization of these predicates in English and Catalan; and/or (2) it might be the case that the *wh*-clauses that embed in emotive factives in English are not interrogatives that denote questions.

Let us first start by spelling out how the literature has approached the data from English. There are two main proposals, although their details differ. Some authors (Grimshaw, 1979; Gutiérrez-Rexach, 1996; Zanuttini and Portner, 2003) claim that EXCs embed in emotive factives and some others (Lahiri, 1991; D'Avis, 2002; Abels, 2005) argue that *wh*-clauses embedded in emotive factives are to be treated as *wh*-interrogatives. The evidence that supports the first claim comes from the surface differences that exist between *wh*-exclamatives and *wh*-interrogatives, for instance, the presence of *very* after *how*, which is incompatible with an interrogative interpretation (**How very tall is he?*), the presence of the *wh*-phrase *what a* which is also absent in interrogatives (**What a tall boy are you?*), and, also, the fact that emotive factives cannot embed polar interrogatives introduced by *whether*. On the other hand, the advocates of the second proposal claim that the exclamatory meaning of the constructions involving an emotive factive and a *wh*-clause comes from the meaning of the embedding predicate. Furthermore, these predicates can introduce multiple interrogatives, which we have seen cannot happen in EXCs (e.g., *It's amazing which men love which women*, from (Lahiri, 1991, 26)).

Grimshaw (1979) postulates the presence of an [E] feature (in comparison with [Q] for questions and [P] for propositions) that factive predicates bear and that makes it possible for EXCs to be embedded in them. Gutiérrez-Rexach (1996) also follows Grimshaw (1979) in claiming that embedded EXCs exist, although he disagrees with Grimshaw when she attributes [E] to every emotive factive, which suggests that every *wh*-clause embedded in an emotive factive is an EXC. Instead, Gutiérrez-Rexach claims that these predicates can either embed

an interrogative or an EXC. As has been elaborated on in chapter 2, their denotation differs in the fact that EXCs contain an exclamative operator over propositions which takes as argument the proposition that its interrogative counterpart denotes (following Groenendijk and Stokhof (1984)). In other words, embedded interrogatives in factive predicates are different from embedded EXCs in that the latter include the speaker's attitude towards what the proposition that the interrogative denotes. In the same spirit, Zanuttini and Portner (2003) mention that EXCs embed in factive predicates, because EXCs themselves are factive (they contain the factive morpheme FAC), and their denotation is the same of that of interrogatives (a set of alternatives). It is the presence of FAC what triggers the main distinction between these two clause types, namely, it generates a pragmatic effect that they name *widening*.

Lahiri (1991) points out that *wh*-clauses embedded in predicates of surprise need not be interpreted as EXCs, but, crucially, he refers to those *wh*-clauses that cannot be matrix EXCs (i.e., *It is surprising who came to the party*). As a matter of fact, Gutiérrez-Rexach (1996) makes the same claim, but Lahiri does not touch upon the examples that contain *wh*-complements introduced by *what a* and *how very*.

On the other hand, D'Avis (2002) and Abels (2005) explicitly treat any *wh*-complement embedded in these predicates as interrogative. They claim that the exclamative reading that emerges in these constructions is the result of embedding a *wh*-interrogative clause in an exclamative/surprise predicate and make proposals to explain the restrictions these verbs have (e.g., their inability to select for a yes/no question introduced by *whether*). According to Abels (2005), a *surprise*-predicate denotes a relation between two propositions and an individual. One of the propositions expresses how the world is according to the referent of the subject of the predicate, what he/she knows. The other proposition contradicts the first one and, thus, differs from the expected state of affairs. We thus need two propositions, but the question denotation makes this possible. Both D'Avis (2002) and Abels (2005) base their proposals in Heim (1994)'s approach to the denotation of questions, according to which they can denote answer1 and answer2. I will work with the following example:

(447)   It's amazing how tall Pau is.

Roughly, answer1 is the set of worlds that make the sentence *Pau is d-tall* true. And answer2 is the set of worlds where the set corresponding to answer1 to the *wh*-clause is the same as in the actual world. In other words, this is the strongly exhaustive answer; the answer

that includes the negation of the false members of the set. Formally:

(448)   From (D'Avis, 2002, 9)

    a. Answer1:

      ans1(wh-clause, w) $= \cap[\![$wh-clause$]\!](w)$

    b. Answer2

      ans2(wh-clause, w) $= \lambda w'[$ans1(wh-clause, w') $=$ ans1(wh-clause, w)$]$

D'Avis (2002) proposes that a predicate like *be amazed at* with a *wh*-complement yields the following relation between the referent of the subject of the surprise predicate and two propositions: I know ans2 (Pau's actual tallness) and expected ¬ ans1 (what he calls *the norm proposition*).

From this we gather that the contribution of the *wh*-clause is the two-fold denotation of ans1 and ans2. On the other hand, the predicate takes as input the two propositions in a particular way (ans1 is negated and used as a norm proposition). This is to say that, according to D'Avis and Abels, the exclamative reading is the predicate's responsibility. As a matter of fact, D'Avis (2002) calls these predicates *exclamative predicates*; and they are characterized like this: They describe an emotional attitude towards a state of affairs, they presuppose that the *wh*-variable is instantiated (when they embed a *how*-interrogative, there has to be an actual degree of ADJ-ness) and they establish the aforementioned relation between ans2 and ans1.

Ginzburg and Sag (2001) make a novel proposal which differs from the previous ones. According to them, factive predicates select for facts. This goes against D'Avis (2002) and Abels (2005), since the latter propose that any surprise predicate takes two propositions as arguments, each one being one answer to the interrogative expressed by the *wh*-clause. Also, this goes against Gutiérrez-Rexach (1996) and Zanuttini and Portner (2003), because the latter basically adopt the denotation of an interrogative as a set of alternatives and then add an additional ingredient, be it an operator over propositions or a factive morpheme to make the difference between interrogatives and EXCs explicit. Ginzburg and Sag, on the other hand, claim that EXCs denote facts, as has been explained in section 5.1.1 above.

Focusing only on the incorrect predictions that these theories make with respect to the Catalan data, I will start by showing that interrogatives do not easily embed in emotive factives.

(449)   a. ??És increïble qui ha vingut.

        'It's incredible who has come.'

        b. ??Em sorprèn què ha passat.

        'It surprises me what has happened.'

The literature has employed examples of embedded EXCs to illustrate the basic properties of matrix EXCs (for example, factivity or lack of subject-verb inversion). However, these examples do not have a direct correspondence in Catalan. I am referring to cases like these:

(450)   a. It's amazing how tall you are

        b. ??És increïble que alt que ets

(451)   a. I can't believe what a wonderful job you did in Nepal

        b. *No em puc creure quina feina tan meravellosa que heu fet a Nepal

The are two possible ways to construct the English equivalents in Catalan; ones is by means of a DP, and the other one, by means of the *wh*-word *com* (which means 'how'). Let us start with the case of the DP.

(452)   a. És increïble *lu* alt que ets.

        b. No em puc creure la feina (?tan meravellosa) que heu fet a Nepal.

Two remarks are in order: The complement introduced by *lu* in (452a) is called a *degree relative*, and DegP in (452b) is slightly deviant, because – as commented in the Appendix in chapter 4 – *tan* does not easily occur inside a definite DP (whereas it does inside a DP headed by a demonstrative).

Here are the alleged embedded EXCs introduced by *com* ('how'):

(453)   És increïble com ets d'alt.

        'It's incredible how tall you are.'

Be this as it may, there is a striking contrast between Catalan and English that calls into question the idea that EXCs are embeddable in emotive factives or, at least, that the denotation of matrix and embedded EXCs is the same. All of the analyses mentioned above predict that these predicates should embed the *wh*-exclamatives crosslinguistically, since the explanation for the behavior of embedded EXCs and interrogatives that embed in exclamative

predicates are stated in terms of semantic requirements of the predicates and of the *wh-*clause. Nevertheless, this does not hold for some languages, Catalan among them. The hypothesis I want to pursue here is that, at least in Catalan, it is not a trivial fact that *wh-*exclamatives cannot embed in emotive factives. Furthermore, I want to show that degree relatives embedded in emotive factives do not have the same semantics as the EXCs that are the object of study in this thesis. Specifically, emotive factives (as well as cognitive factives and interrogative predicates in general) can embed degree relatives, which can be construed as concealed propositions, as will be shown below. Along with D'Avis (2002) and Abels (2005) I argue that embedded EXCs are not EXCs, but, unlike them, I will not say that they are interrogatives, either.

Let us start by considering degree relatives. Degree relatives in Spanish have been studied by Gutiérrez-Rexach (1999) and before that, by Rivero (1981); Lapesa (1984) and Bosque and Moreno (1990). The following is a relevant example (from (Gutiérrez-Rexach, 1999, 36)):

(454) Juan no entendió   lo   hermosa   que era la   novela.
       Juan not understood the-neut. beautiful-fem.sg. that was the-fem.sg. novel-fem.sg.
       'Juan did not understand how beautiful the novel was.'

According to Gutiérrez-Rexach, *lo* is a function that takes as input a lexical item and returns the maximal set of degrees with respect to this input. In degree relatives, this means that *lo* takes G and a CP as its arguments and it gives back the maximal degree with respect to the denotation of the argument. (Adapted from (Gutiérrez-Rexach, 1999, 45))

(455) lo hermosa → MAX($\lambda d \lambda x.$beautiful$_{fem.sg.}$'$(d)(x)$)

(456) a. lo hermosa que era la novela

       b. lo [hermosa ... x ... DP ...] → MAX($\lambda d(\lambda x.$Beautiful$_{fem.sg}$'$(d)(x)($The(Novel')$)))=$
          MAX($\lambda d($Beautiful$_{fem.sg}$'$(d)(\iota x[$Novel'$(x)])])$)

Roughly, degree relatives denote a maximal degree such that an individual has a property to this maximal degree. In other words, they do not denote a proposition, but an individual.

Thus, apparently, emotive factives can take as argument a phrase whose content is a proposition, or an individual.

(457) a. És increïble que hagi   tingut deu fills.
          is incredible that AUX.SUB.he/she had   ten children
          'It's amazing that she's had ten children.'

b. És increïble la   paciència que té   amb tothom.
   is incredible the patience that has with every body
   'It's incredible the patience she has with every body.'

However, the data presented in (449) – in which emotive factives do not easily embed *wh*-interrogatives – suggest that these predicates may not take questions as arguments. It seems clear from the Catalan data that they only embed facts that can be expressed by a proposition (or a DP construed as a concealed proposition).[11]

As a matter of fact, Gutiérrez-Rexach (1999) analyzes (458a) as in (458b), where *realize* takes an individual, a definite description of a degree and a time as its arguments:

(458)   From (Gutiérrez-Rexach, 1999, 54, 56)

a. Juan se dio cuenta de lo   estúpido de tu   pregunta.
   Juan SE gave account of the-neut. stupid   of your question-fem.sg.
   'Juan realized how stupid your question was.'

b. $\iota x \exists t[\text{Past}(t) \wedge \text{Realize'}(t)(x)(\text{Juan}) \wedge x = \text{MAX}(\lambda d[\text{Stupid'}(d)(\text{Your}(\text{Question'}))])]$

That is, there are arguments to believe that embedded EXCs denote an individual, a degree, actually. For instance, in the following example, a *wh*-phrase that behaves like an embedded EXC is selected by a preposition that select for individuals, too. And when it embeds a *that*-clause, it needs to include *the fact* (an NP).

(459)   a. Despite what we did, how (very) stupid we were, I know we do good work.

b. Despite my mistake we won.

c. Despite *(the fact) that I committed a mistake, we won.

The ill-formedness of *wh*-clauses embedded in factive verbs in Catalan is naturally explained if these predicates can embed an individual (a degree), but not an interrogative.

(460)   a. És sorprenent que la   teva germana hagi   arribat a temps.
           is surprising that the your sister   AUX.SUB.she arrived to time
           'It's surprising that your sister is on time.'

---

[11]It would not make sense to consider that these DPs are concealed questions. As Maribel Romero points out to me (p.c.), generally, it is the case that not all question-embedding predicates can take concealed questions as arguments (e.g., *wonder* vs. *know*: *She wonders the time of the concert* vs. *She knows the time of the concert*), whereas they do not pose any problem when it comes to embedding *wh*-interrogatives. It would then be counterintuitive to accept that emotive factives can always embed concealed questions but only sometimes, *wh*-interrogatives.

b. És sorprenent la   sort que té   en Miquel.
is surprising the luck that has the Michael

'It's surprising how lucky Miquel is.'

c. ??És sorprenent qui ha   vingut.
is   surprising who AUX.he/she come

Nonetheless, saying that propositional verbs such as the factive predicates mentioned above can take an individual as argument is misleading. Recall that Zucchi (1993) argued that attitude predicates induce a propositional meaning from an individual ((461)).

(461)   a. Her false teeth surprised me.

b. It surprised me that she had false teeth.

(462) $\exists d[\text{size}(Pau) = d \wedge \text{surprising}(d)]$

If we assume following Ginzburg and Sag (2001) that factive verbs do not select for an individual but for a fact whose content is a proposition, then we can consider degree relatives as concealed propositions. This is how these degree relatives could be paraphrased when selected by a propositional verb:

(463)   a. És increïble lu   alt que és en Pau.
is   incredible the tall that is the Pau

'It's incredible how tall Pau is.'

b. És increïble que en Pau sigui lu alt que és.
is   incredible that the Paul is.SUB the tall that is

'(lit.) It's incredible that Pau is how tall he is.'

Actually, this paraphrase is based on the way Elliott (1974), in one of the first works on EXCs, presented the difference between what he called *exclamations* and free relatives. He argues that on occasion, a *wh*-construction may be ambiguous between an exclamation interpretation and a cleft interpretation. However, he claims that exclamations are less restricted than cleft constructions.

(464)   From (Elliott, 1974, 236-237)

a. Where they went on their vacation is fantastic.

i. That they went where they went on their vacation is fantastic.

ii. The place where they went on their vacation is fantastic.

    b. Who George married is fantastic.

        i. That George married who he married is fantastic.

        ii. # The person whom George married is fantastic.

    c. i. *Who I saw was very pretty.

        ii. Who I saw was fantastic.

What Elliott (1974) intends to show is that a sentence like (464a) is ambiguous. It can either be interpreted as containing a free relative (ii) or as being an exclamation (i). Note that what he means by *exclamation* is translated as a presupposed *that*-clause that depends on the factive predicate *is fantastic*. Probably, this difference is not contingent on whether we have a free relative or an exclamation, but on whether we interpret *is fantastic* as being a copular verb and a predicative adjective (ii) or as being a factive predicate (i). Note that in (464b), the available reading is the one in (i), but not the one in (ii). The author explains this contrast by saying that free relatives are sensitive to pseudo-clefting human NPs. This is also evident in (464c), where (ii) is acceptable because it is claimed to be an exclamation. In fact, the *wh*-clause is acceptable in a sentence containing an *exclamatory adjective* (*fantastic* is considered an exclamatory adjective, opposite to *pretty*).

It has to be noted that none of these sentences would be described as an EXC using the criteria adopted in this thesis. The *wh*-words *where* and *who* are not part of the inventory of exclamative *wh*-words, to begin with. So, clearly, what we have here is an ambiguity in the interpretation of the predicate. Characteristically, *is fantastic* can be a factive predicate (it can select for a fact expressed by a *that*-clause), but not *is pretty*.

(465)   a. It's fantastic that Sydney survived.

        b. *It's pretty that Sydney survived.

Hence, (i) in (464a) is a synonym of the following (more common) sentences:

(466)   a. It's fantastic where they went on their vacation.

        b. It's fantastic that they went where they went on their vacation.

The reason why (ii) in (464b) and (i) in (464c) are unacceptable does not concern us here. What interests us is that degree relatives embedded in factive predicates are concealed propositions of the form in (463b).

Summing up, there are strong arguments in favor of treating degree relatives as being concealed propositions when they appear as complements of a factive predicate, and not definite descriptions of a maximal degree, as Gutiérrez-Rexach (1999) posited. Moreover, note that the emotional attitude in these cases is held towards a maximal degree, but not towards a relation between a degree and a high standard. This establishes an important difference between the denotation of an EXC and that of a degree relative embedded in an emotive factive. From this we gather that, even though they are similar, the semantics of the two constructions is not the same.

Let us now come back to *wh*-clauses introduced by *com* ('how') which are embedded in emotive factives.

(467)   És increïble com és d'alt   en Pau.
        is incredible how is of tall the Paul
        'It's incredible how tall Pau is.'

This sentence looks very much like the English counterpart, since there is a *wh*-word introducing the sentential complement. However, there is still a striking contrast between English and Catalan; the fact that *wh*-element *com* ('how') but not *què* ('what') can embed in these predicates. Interestingly, even if we could explain why *com* is acceptable but *què* is not, high degree denotation could not be part of the denotation of the *wh*-clause. In other words, if we accept that the embedded interrogative *com és d'alt en Pau* ('how tall Pau is') denotes a set of worlds (i.e., a proposition) in a Gutiérrez-Rexach (1996) fashion, then high degree can only be the result of the meaning of the predicate. Alternatively, we have to stipulate that there is another *com* which only occurs in EXCs, which does not seem necessary given the denotation that we obtain in the formulae below (adapted from Gutiérrez-Rexach (1996)):

(468) $[\![\text{Com és d'alt en Pau}]\!] = \lambda w'[\iota d[\text{tall}(w)(p,d)] = \iota d[\text{tall}(w')(p,d)]]$

This formula reads: This clause is a function from worlds *w'* to truth values such that there is a single degree such that the degree to which Pau is tall in the actual world is the same as the degree to which Pau is tall in *w'*. In other words, the clause *Com és d'alt en Pau* denotes the proposition that represents the true answers to the question *Com és d'alt en Pau?*. Now, we add this to the meaning of *it's incredible* and we obtain the meaning that we want, namely, that it is incredible that Pau is tall to degree *d*, which suggests that this

degree must be tall enough to provoke amazement in the speaker.

(469)   a. És increïble com és d'alt en Pau.

'It's incredible how tall Pau is.'

b. It's incredible $[\lambda w'[\iota d[\text{tall}(w)(p,d)] = \iota d[\text{tall}(w')(p,d)]]]$

There is another possible interpretation. Bear in mind that *com* also introduces a free relative in Catalan (just as *how* in English). And, more generally, free relative introducers may coincide with interrogative words. So, at least, *com* and *how* can be introduced by an emotive factive and they could in principle be interpreted either as interrogative words or as free relative pronouns. (467) may be paraphrased as in (470), where *com* has the behavior of a degree relative.

(470)   És increïble que en Pau sigui   com és d'alt.
         is   incredible that the Paul is.SUB how is of tall

'(lit.) It's incredible that Pau is how tall he is.'

To recap, I have accepted that emotive factive predicates cannot embed EXCs in Catalan, because these predicates do not introduce *wh*-clauses. Though it needs to be examined in depth, a possible explanation for this crosslinguistic mismatch may be attributed to a typological difference regarding the need for definiteness. That is, the complement of an emotive factive is a subject and *wh*-words are indefinite, and this may run into problems in languages like Catalan. Recall that any definite DP is acceptable in this context, and this would include degree relatives. The crosslinguistic data suggest that it may be the case that at least *how*-exclamatives in English are instances of free relatives which contribute concealed propositions when they embed in emotive factives. Furthermore, it has been suggested that degree relatives and EXCs do not have the same semantics.

5.3.2   Cognitive factives

In this subsection I want to show that a *wh*-clause headed by *com* ('how') embedded in a cognitive factive does not denote high degree by virtue of its compositional semantics. At least as far as Catalan is concerned, high degree may be inferred from context, but it is not in the denotation of the predicate or the *wh*-clause. Furthermore, just as was the case in the previous subsection, EXCs in Catalan do not embed in cognitive factives. The hypothesis I

will maintain is that the lack of codification of the speaker's emotional attitude towards a degree makes it impossible for EXCs to embed in them.

Cognitive factives are predicates that select for facts, according to Ginzburg and Sag (2001), which can be represented as a proposition and as the answer of a question expressed by an interrogative clause. Examples of cognitive factives are: *know, realize* or *find out*. As is shown below, these predicates can either introduce a *that*-clause or a *wh*-clause.

(471)   a. I know that she won first prize.

        b. I know who won first prize.

(472)   a. Mary realized that John failed because nobody helped him.

        b. Mary realized why John failed.

(473)   a. Woody found out that Jordan had gone to Washington D.C.

        b. Woody found out where Jordan had gone.

Contrary to what happened with emotive factives, the whole range of *wh*-interrogative words are available in Catalan ((474)).

(474)   a. Ja   sé   qui ha   vingut.
            already know who AUX.he/she   come
            'I know who has come.'

        b. En Miquel ha   esbrinat   per què pateix en   Joan.
            the Michael AUX.he   found out   why   suffers the Jack
            'Miquel has found out why Joan is in pain.'

Also, they can embed a *that*-clause.

(475)   a. Ja sé que ha vingut en Pere.

            'I know that Pere has come.'

        b. En Miquel ha esbrinat que en Joan pateix perquè té fred.

            'Miquel has found out that Joan is in pain because he's cold.'

Emotive factives and cognitive factives differ in many respects. Recall that the referent of the subject of an emotive factive is claimed to hold an emotive attitude toward the proposition expressed by the *that*-clause or *wh*-construction. On the other hand, the referent of the subject of a cognitive factive knows that the conditions under which the content of its complement

are true actually hold. According to D'Avis (2002) there is an additional difference between emotive factives and cognitive factives. He accepts that *know* is a factive predicate, but argues that when it introduces a *wh*-complement, the *wh*-variable need not be instantiated. Here are the examples he gives to illustrate his claim (examples (18) and (19) from (D'Avis, 2002, 10,11)):

(476)   a. Heinz knows who Maria has invited.

         b. Maria did not invite anyone.

         c. → Heinz knows that Maria didn't invite anyone.

(477)   a. Heinz is amazed at who Maria has invited.

         b. Maria did not invite anyone.

         c. –//→ Heinz is amazed that Maria didn't invite anyone.

D'Avis claims that alleged embedded EXCs are actually *wh*-interrogative clauses embedded in what he calls *exclamative predicates* (i.e., what I have called *emotive factives*). And one of the properties that characterize these predicates is that the *wh*-variable is instantiated. Thus, cognitive factives do not belong to the group of exclamative predicates and, hence, we do not know, for instance, how *wh*-clauses introduced by *what a* in English should be analyzed, according to D'Avis. Recall that D'Avis (2002) and Abels (2005) claim that alleged embedded EXCs in emotive factives are actually interrogatives and high degree is derived from the meaning of the predicate. We observe in (478) that the sentence in (478a) may be uttered even if the degree of tallness of Maria is not high.

(478)   a. Heinz knows how tall Maria is.

         b. Maria is not tall.

         c. → Heinz knows that Maria is not tall.

What we gather from the contrast between (478) and (477) is that high degree may not derive from the meaning of the predicate when cognitive factives embed degree *wh*-clauses that are interpreted as EXCs.

There is another aspect in which the two types of factives differ, namely, that only emotive factives license *tan* or any other PSIs (cf. chapter 4 section 4.1.2.3). Furthermore, these trigger the presence of subjunctive mood in languages like Catalan, whereas cognitive factives embed

clauses in the indicative mood. Whether this is the effect of a different relation between the predicate and the embedded clause or whether the emotive attitude is responsible for licensing PSIs will be the object of future research.

(479) a. És increïble   que en Pau sigui   tan alt.
           is   incredible that the Paul is.SUB so   tall
           'It's incredible that Pau is so tall.'

       b. *Ja sé que en Pau és tan alt.
           'I know that Pau is so tall.'

Cognitive factives are not only members of the group of factive predicates, but also of the group of question-embedding predicates. As Gutiérrez-Rexach (1996) points out, only cognitive factives, but not the other interrogative predicates of the *wonder* and *ask* type, can embed exclamatives in English:[12]

(480) a. He realized what a great cook she was when he had lunch at her place.

       b. *He wonders what a great cook she is.

The embedded clauses in (480) are unquestionably not interrogatives, because what introduces the *wh*-clause is *what a*. But there are cases that, according to Elliott (1974) and Grimshaw (1979), are ambiguous between two possible readings:

(481) I know how tall Pau is.

According to the aforementioned authors, there is one interpretation that can be paraphrased as "I know the answer to the question *how tall is he?*". And the other one would be "I know that he is extremely tall". This ambiguity disappears when *very* follows *how*; in this case only the second reading is available, according to the literature.

(482) I know how very tall Pau is.

The same thing applies to intensified GAs that occur inside *wh*-complements in non-exclamative predicates in German (as D'Avis (2002) posits).

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[12]These two types also differ in that the *know*-type can introduce a concealed question, but the *wonder*-type cannot (*I know the answer* vs. **I wonder the answer*). About this topic, see Romero (to appear) and references therein.

(483)   *Heinz fragt sich, wie riesig Maria ist

       'Heiz asks himself how gigantic Maria is.'

The reason why the interrogative reading is ruled out is presumably because the questions *how very tall is Pau?* and *Wie riesig ist Maria?* are quite odd. As a matter of fact, as argued in chapter 4, these questions that contain a DegP inside the *wh*-interrogative are not necessarily ungrammatical but rather pragmatically unusual and they only have an echo interpretation. This means that they may be acceptable in specific contexts:

(484)   a. I know Pau is very tall, but how very tall is he?

       b. Heinz weißt, daß Maria riesig ist, aber er möchte wissen, wie riesig sie ist.

          'Heinz knows that Maria is gigantic, but he would like to know how gigantic she is.'

However, aside from these fabricated contexts, clearly, the presence of *very* or intensifier adjectives is associated with the speaker being acquainted with the value of the *wh*-variable. Hence, these modifiers are odd in questions, where the speaker is not committed to the descriptive content of the clause. In contrast, whenever the speaker is committed to the content expressed by the *wh*-clause, the presence of *very* or of intensifier adjectives is felicitous. Nevertheless, note that not only high-degree adverbs are available in this situation, but any manner adverb. Consider the following example:

(485)   I know how very/amazingly/relatively/fairly tall Pau is.

Thus, a sentence like *I know how tall Pau is* need not necessarily have two possible interpretations (one in which the referent of the subject knows the answer to the question *how tall is Pau?* and another one that is paraphrasable as *I know that Pau is extremely tall*). Depending on whether the speaker assumes that the degree to which Pau is tall is very high or fairly high, the meaning will be one or the other. Following the tentative proposal in chapter 4 section 4.2.3, manner adverbs are treated as conventional implicatures (side comments made by the speaker) and are computed in parallel with the descriptive content of the clause. If we want to keep to the idea that *wh*-clauses embedded in factive predicates denote a fact that corresponds to the true answer to the question expressed by the *wh*-interrogative, then we may say that the previous sentence is computed in two parts. First, we have the true answer

to the question *how tall is Pau?* and, then, the conventional implicature according to which the speaker expresses that Pau's degree of tallness is extremely or relatively high. However, recall the following examples:

(486)   a. It's amazing how very/ unbelievably/ extremely long he can stay under water.

   b. *It's amazing how slightly/ fairly/ reasonably long he can stay under water.

Here, the *wh*-clause is embedded in an emotive factive (i.e., *it's amazing*) and only high-degree denoting adverbs are felicitous. Although this is true, this does not overrule the fact that if the speaker is committed to the descriptive content of the clause, then a conventional implicature may arise by means of the presence of a manner adverb. The reason for the infelicity of (486b) is explained by saying that it is contradictory to be amazed at the degree of ADJ-ness of an individual (which implies that the speaker considers this degree to be high) and, at the same time, describe it as being just fairly high.

I will now focus on a related question: Is high degree part of the denotation of the predicate? Is it part of the denotation of the *wh*-clause? In Gutiérrez-Rexach (1996), this is the responsibility of the operator EXC and also of a scalar implicature. And in Zanuttini and Portner (2003) it is the effect of widening, which is a pragmatic inference that arises thanks to the presence of the *wh*-operator and the morpheme FAC. I want to argue that high degree is not part of the compositional semantics of the construction, with the aid of the data from Catalan. But first, assume that *know* is a factive verb that can either embed a proposition that is treated as a fact or a question whose answer is treated as a fact. Hence, in both cases, we want to feed the factive predicate with a proposition of type $< s, t >$. Here are two possible denotations of both the cognitive factive predicate ((487b)) and the *wh*-clause ((487c)).

(487)   a. Ja sé com és d'alt en Pau.
           'I know how tall Pau is.'

   b. $[\![\text{saber}]\!]^w = \lambda p \lambda x . \forall w' \text{compatible with what } x \text{ knows in } w : p(w') = 1$

   c. $[\![\text{Com és d'alt en Pau}]\!]^w = \lambda w'[\iota d[\text{tall}(w)(p, d)] = \iota d[\text{tall}(w')(p, d)]]$
       (adapted from Gutiérrez-Rexach (1996))

(487b) is a rough paraphrase of what *saber* means: A function that takes a proposition p and an individual x and comes out true only if for every world w', the relation between w'

and the actual world w is such that w' is compatible with what x knows in w. And (487c) is a denotation in terms of Gutiérrez-Rexach (1996) which states that the interrogative *Com és d'alt en Pau* denotes a proposition that coincides with the true answer to the question *How tall is Pau?*.

Clearly, if we embed this *wh*-clause to the predicate *know* with no addition of another element, there is no obvious way in which high degree arises. (487c) feeds the function (487b) and we obtain a function from individuals into truth values such that for all w' compatible with what the individual x knows in w, x knows the degree such that Pau is tall to this degree.

This would be the desired result for an embedded interrogative, but it would not be enough to account for the meanings of the examples in (480a) and (482). This is the reason why Zanuttini and Portner (2003) appeal to a factive morpheme and the emergence of widening, and Gutiérrez-Rexach (1996) resorts to the existence of an exclamative operator over propositions and a scalar implicature. Keeping to the Catalan examples, I propose that it is the context and/or the intonation of the sentence what indicates high degree, because the denotation provided in (487c) correctly predicts the meaning of *Ja sé com és d'alt en Pau* ('I know how tall Pau is.'). Leaving aside for now whether Rexach's (or Karttunen's or Groenendijk and Stokhof's) proposal for the denotation of the *wh*-clause is the most appropriate one, I claim that the *wh*-clause introduced by *com* ('how') has a single denotation. I have already accepted in the previous subsection that it is the emotive predicate what involves high degree denotation; likewise, the lack of high degree in this case derives from the meaning of *know*, which only requires that the referent of the subject know a fact.

In Catalan, there is another embedding option, as was the case with emotive factives; degree relatives can also be the complements of cognitive ones ((488)).

(488) Ja   sé   *lu* alt que és en Pau.
       already know.I the tall that is the Paul
       'I know how tall Pau is.'

Again, I want to claim that their initial denotation is that of a maximal degree (cf. Gutiérrez-Rexach (1999) and the previous subsection), but it is coerced into a proposition to be able to embed in a factive predicate. Nevertheless, here it is not clear that the use of *lu*, which is not a genuine word in Catalan, does not involve that the maximal degree to which Pau is tall be high. This will need to be examined in more depth in future research.

What is most important for our purposes is that cognitive factives cannot embed an EXC, neither one introduced by *quin* ('what') nor one introduced by *que* ('how').

(489) a. *Ja   sé   quin noi tan llest   que has   conegut.
          already know.I what boy so   smart that have.you met

      b. *En Miquel ha   esbrinat que perillós   que és en Julià.
          the Michael AUX.he found out how dangerous that is the Julian

Let us compare the denotation in (487c) with the proposed denotation for an EXC.

(490) a. Que alt que és en Pau!

        'How tall Pau is!'

      b. $\text{TAN}(\text{tall}(p))(d_i)$, where the value of i is given by the context and it is always high.

The denotation in (487c) makes sure that a degree interrogative is interpreted as the set of true answers such that it exists a sole d such that Pau is tall to degree d. In contrast, the denotation above specifies that Pau is at least as high as some contextually determined standard that is high. These two representations do not only differ in the fact that (487c) requires that its meaning be a proposition that constitutes an answer to a question, but also in the fact that (490) requires that the standard degree be high, whereas this requirement is absent in (487c).

At this point, it seems reasonable to accept that high degree does not derive from the meaning of the predicate or the *wh*-clause. Interestingly, note that I have accepted that *wh*-clauses embedded in cognitive factives and introduced by *how* in English and *com* in Catalan are to be analyzed in the same way as *wh*-interrogatives. This poses another question: How does the semantics of an EXC arise when the clause is not embedded? Consider the following examples:

(491) a. Ja sé com és d'alt en Pau.

        'I know how tall Pau is.'

      b. Com és d'alt en Pau!

        'How tall Pau is!'

Recall that, according to Zanuttini and Portner (2003) and Gutiérrez-Rexach (1996), the semantics of EXCs is subordinate to the semantics of questions, so to derive the meaning of EXCs they stipulate the existence of additional operators. Another possible idea to pursue is

that all *wh*-clauses have a shared semantics, so a matrix *wh*-clause may derive into a question or into an EXC depending on pragmatic factors such as who the speaker commits to the content of the clause (him/herself or the addressee). This is an interesting research project for a future occasion.

As far as the EXCs that are the object of study of this thesis, I have not said anything about the impossibility of (490) to embed in a cognitive factive. As I have said at the beginning of the chapter, EXCs in Catalan denote facts, but they update the CG with an additional meaning, namely, that the speaker experiences an attitude towards a degree. Crucially, the meaning that is contributed to discourse cannot be detached from the clause. Consequently, predicates that select for facts will not be able to embed EXCs in Catalan. Only verbal forms that can embed both the content of the clause and the additional meaning attached to it can introduce EXCs in Catalan (see subsection 5.3.3).

At the present moment, all we can say for sure is that the constraints that govern the well-formedness of embedded EXCs in English and Catalan are different. In English, it is enough if it is presupposed that the speaker knows the value of the *wh*-variable and, hence, he/she is committed to the descriptive content of the *wh*-clause. This becomes evident in the puzzle that Zanuttini and Portner (2003) highlight as one of the tests that distinguish embedded EXCs and embedded interrogatives.

(492)   a. I don't know how tall Pau is.

         b. *I don't know how very tall Pau is.

According to the authors, the ill-formedness of (492b) is due to a clash between the sentence's presupposition and what the matrix clause asserts. Specifically, *how very tall Pau is* involves *widening* (the expansion of the initial quantificational domain – which contains the expected degrees of tallness – to a wider domain – which contains an unexpected range of heights for Pau), and the fact that the domain is widened is construed as being presupposed in these authors' proposal. Hence, Pau is presupposed to be unexpectedly tall. However, *I don't know* p asserts that the speaker does not have this knowledge, which contradicts the presupposition associated with the embedded clause.

In a proposal that does not resort to widening, how can this contrast be accounted for? A simple explanation would be that *I don't know* does not behave like a cognitive factive. In fact, *I don't know* behaves like *I wonder*, which, as has previously been pointed out, belongs

to a class of question-embedding predicates that differ from the *know* class in many respects. What is most interesting is that the ill-formedness depicted in (492b) only arises when the subject is on the first person and in present tense. This has to do with the fact that the referent of the subject is the speaker, and in order to add the manner adverb construed as a conventional implicature, the speaker must commit to the content of the clause, which is not possible if the subject is on the first person and the verb *know* is negated. In contrast, when the subject refers to another individual in the context of utterance and the verb is negated, then the sentence is acceptable, because we have an interpretation according to which the speaker is the one who has the information. And when the subject refers to the speaker, but the verb refers to the past or the future time, we have interpretation by default that the speaker has the information at the current moment of utterance.

(493)   a. She doesn't know how very tall Pau is → I (the speaker) do know how very tall he is.

   b. I didn't know how very tall Pau is → I (the speaker) know now how very tall he is.

To summarize, even though I have accepted that EXCs denote facts and EXCs in English embed in factive predicates, EXCs in Catalan do not. Factive predicates introduce *that*-clauses; cognitive factives can introduce *wh*-clauses, but emotive factives in Catalan cannot. Since EXCs are *wh*-clauses, they are not embeddable in these contexts, just as interrogatives. In the case of cognitive factives, what prevents EXCs from embedding in them might be that EXCs cannot be detached from the attitude toward a degree that is experienced by the speaker, and this meaning is not captured when a *wh*-clause is embedded in a cognitive factive, since these predicates just select for facts.

5.3.3   Perception predicates

In this subsection I bring up a few predicates that are in fact capable of embedding EXCs in Catalan. Just as what we have seen about confirmation particles in section 5.2.3, I will show that when EXCs embed in these predicates, the speaker wants to involve the addressee in the experience of holding an attitude towards a degree. Moreover, there is an inference according to which the speaker has previously been willing to utter the EXC that is embedded.

The predicates that are able to embed EXCs in Catalan are not just any perception verbs. They are perception verbs in very specific forms, namely, imperative mood, future tense and yes-no interrogatives. Additionally, they can only be in the second or third person.

(494)   a. Has   vist quin noi tan alt que va   amb bici?
            aux.you seen what boy so   tall that goes with bike
            'Have you seen what a tall boy is riding a bike?'

        b. Ja   veurà   quin canvi tan gran que ha   fet.
            already see.he/she.fut what change so big   that aux.he done
            '(lit.) He/she'll see what a great change you have done.'

        c. Mira que alt que és en Pau!
            look how tall that is
            'Look how tall Pau is!'

These precise verbal forms of perception verbs are characterized by the fact that they involve a change in the pragmatic effect that matrix EXCs trigger, and which resembles the effect the confirmation particle *oi?* has (see section 5.2.3).

Observe in (495) how the rest of the forms and persons are unable to embed EXCs:

(495)   a. *Veig quin noi tan alt que va   amb bici.
            see.I what boy so   tall that goes with bike

        b. *Has   vist quin noi tan alt que va   amb bici.
            AUX.you seen what boy so   tall that goes with bike

        c. *Veurem   quin noi tan alt que va   amb bici?
            see.we.FUT what boy so   tall that goes with bike

Crucially, through all of them, the speaker wants for the addressee or another referent to be in a position to utter an EXC. Here are the rough paraphrases of the previous acceptable examples ((494)):

(496)   a. Has vist quin noi tan alt que va amb bici?
            'Have you seen what a tall boy is riding a bike?'

        b. Have you been in a position to utter the EXC *Quin noi tan alt que va en bici!*?

(497)   a. Ja veurà quin canvi tan gran que has fet.
            '(lit.) He/she'll see what a great change you have done.'

        b. He/she'll be in a position to utter the EXC *Quin canvi tan gran que has fet!*.

(498)   a. Mira que alt que és en Pau!

'Look how tall Pau is!'

b. I want you to be in a position to utter the EXC *Que alt que és en Pau!*.

That is, the fact that they are perception verbs makes it possible for the speaker to invite the addressee to be in a position to perceive the stimulus that triggers the EXC. Aside from the property that the speaker must involve another discourse participant, there is an additional feature that draws a distinction between these specific forms and the rest of the perception verbs, namely, the inference according to which the speaker has already been in a position to utter the EXC. In other words, he/she has perceived the stimulus and the degree of ADJ-ness of the individual in question is high enough to provoke him/her an attitude.

Another property of these verbal forms is that, contrary to what happens with factive verbs, they allow for the possibility of introducing an EXC whose TP is not spelled out ((499)), which is also an option for matrix EXCs ((500)).

(499)   a. Has vist quin noi tan alt?

'Have you seen what a tall boy?'

b. Ja veurà quin canvi.

'He/she'll see what a change.'

c. Mira que alt!

'Look how tall!'

(500)   a. Quin noi tan alt!

'What a tall boy!'

b. Quin canvi!

'What a change!'

c. Que alt!

'How tall!'

On the other hand, perception verbs, when they do not embed EXCs – have their own semantic selectional pattern that does not change depending on their mood, tense or person. This establishes a distinction between the semantic selection of these verbs and the embedding pattern described in this subsection. For example, the verb *veure* ('to see') can take an individual ((501a)) or a *wh*-clause ((501b)).

(501)   a. A Boston hi vaig veure molts esquirols
            'I saw many squirrels in Boston.'

        b. He vist qui ha mort la tieta
            'I've seen who killed our aunt.'

On the other hand, it can also embed a *that*-clause, but then, the verb means *understand* rather than just *see*.

(502)   Veig que finalment has tingut sort
        'I see that you've been lucky at last.'

Mirar ('to look at') has a slightly different selection pattern. When it takes an individual as argument, it either means to fix on something or to be spectator of something ('to watch') ((503a)); when its argument is an interrogative, it can be translated as 'to pay attention, to find out' ((503b)), and when it embeds a *that*-clause, it means 'to check, make sure.' ((503c)).

(503)   a. No vull que et passis la tarda mirant la tele.
            'I don't want you to spend the afternoon watching TV.'

        b. Mira què diu en Sebastià i fes-ne un resum.
            'Pay attention to what Sebastià says and write a report.'

        c. Mira que l'avi hagi acabat de preparar les llenties.
            'Make sure that grandpa is done cooking the lentils.'

What is more interesting is that these are not the meanings that make it possible for EXCs to occur. The predicate we want is the one that selects for a remarkable fact, and the meaning it has differs from just the ones described above. The best way to capture the difference is by using an example in which two interpretations are possible. We can do it with an embedded interrogative:

(504)   Mira què diu en Sebastià.
        '(lit.) Look at what Sebastià says.'

        a. Find out what Sebastià says.

        b. The speaker wants the addressee to feel amazed at the answer to the question
            What does Sebastià say?.

(504a) is the paraphrase of the perception reading, and (504b) is the paraphrase of the reading that allows the embedding of an EXC. In this latter case, the verb can embed a *wh*-clause, the speaker involves another discourse participant and there is an inference according to which the speaker has felt an attitude towards a fact. These are the conditions to be met in order for an EXC in Catalan to embed.

Fourth, embedding predicates encode the sentential force that matrix clauses have, because force is a property that concerns but not propositions, but this does not seem to be the case for perception predicates.

As we have seen, the presence of the perception verb has an effect that concerns involving another discourse participant in experiencing an attitude towards a degree.

Summing up, EXCs in Catalan seem to be more of a root phenomenon; they do not embed in predicates like interrogatives do. What is constant in the embedding predicates is that there has to be an inference according to which the speaker must experience an attitude. Consequently, even if EXCs denote facts, it is not enough for the embedding predicate to be factive. Recall that emotive factives do not introduce *wh*-clauses in Catalan and that is what apparently prevents them from embedding EXCs. The problem of cognitive factives has been identified as the impossibility of the predicate to encode the speaker's attitude. More research needs to be done to determine the reasons for these restrictions. Since they do not hold for English, a crosslinguistic study is also in order.

5.3.4   Summary

This section has dealt with embedding restrictions on EXCs in Catalan. The main goal was to compare what has been said about English with the Catalan data, and this comparison has proven to be very revealing. For starters, EXCs in Catalan do not embed in factive predicates, whether in emotive or in cognitive. To be more precise, the English embedded EXCs have their Catalan counterparts in the form of degree relatives, but I have argued that their semantics is not the same. Moreover, the data that have been presented with regard to emotive factives cast some doubts on the theories according to which embedded EXCs in English are nothing but embedded interrogatives.

Though the verbs that had been claimed so far to introduce EXCs were factive, it has been shown that EXCs in Catalan can only embed in perception predicates as long as they

are in the future tense or in a yes-no interrogative (for the verb *veure* 'to see' and the like) and in imperative mood (for the verb *mirar* 'to look at'). The core idea is that the speaker's attitude must be inferrable even if the clause is embedded. Interestingly, the verbal forms that can introduce EXCs induce a slight change in their contribution to discourse. Specifically, it is inferred that the speaker has experienced an emotive attitude toward the fact that an individual is at least as ADJ as the degree that is high enough to provoke an attitude in the speaker, and and now he/she wants the addressee to hold an attitude towards the same fact.

5.4   Summary

In the previous chapters EXCs in Catalan have been characterized as *wh*-constructions that move either a DP or a DegP headed by a PSI degree word, *tan*, which establishes a relationship between a standard which is considered to be high by the speaker, and the actual degree of ADJ-ness that is held by an individual *x*. That is, we have covered the syntax and the semantics of the degree component of EXCs. Also, we have worked out the compositional semantics of EXCs.

In this chapter I have proposed that EXCs denote facts and their descriptive content is not used to update the Common Ground. I have reviewed the properties that declaratives and EXCs share and have concluded that they both commit the speaker to their descriptive content and involve a biased context, but in the latter, the speaker's purpose is not to contribute the EXC's descriptive content, but rather his/her attitude towards a degree. So such a type of clause is incompatible with satisfying the addressee's public commitment of the speaker to providing an piece of information (e.g., an answer when he/she asks a question).

Another consequence of EXCs denoting facts is that they should embed in factive predicates, which holds for English but not for Catalan. It has been very interesting to realize that EXCs in Catalan only embed in certain forms of perception predicates, which might work more as particles with a pragmatic effect than as real predicates with a semantic selectional pattern. It has been pointed out that these verbs maintain the presupposition that the speaker has experienced an attitude towards a degree.

Chapter 6

Conclusions

In this thesis I have proposed to analyze exclamative clauses as degree constructions. To do so, I have worked with data from Catalan, which have revealed particularly interesting because exclamatives in this language contain an overt degree operator (*tan*), one that also occurs in other degree constructions. I also have summarized previous proposals and have presented the puzzles that the literature had brought up concerning exclamatives in English, and hope to have been able to account for a number of them, even though many questions remain unanswered.

6.1 Concluding remarks

I have called *exclamative* a *wh*-clause that contains a degree operator in the left periphery and whose propositional content is considered a fact; so what this sentence contributes to update the Common Ground is the speaker's attitude towards this fact.

This highly restricted definition disregards other exclamatory constructions that are uttered with an emphatic accentual pattern or degree constructions that involve a high degree denotation by means of the same operator *tan*. They all share a few properties with exclamatives, but not all. These comprise degree relatives ((505a)), pending-intonation *tan*-clauses ((505b)) or even *that*-clauses that embed in emotive factives and which contain *tan* ((505c)):

(505)   a. *Lu* alt que és en Pau!

          '(lit.) The tall that is Pau!'

    b. En Pau és tan alt!

'Pau is so tall!'

   c. És increïble que en Pau sigui tan alt.

   'It's amazing that Pau is so tall.'

Though there may be reasons to consider some (if not all) of these constructions to be exclamative clauses, I have limited my analysis to *wh*-exclamatives and the unique properties they have.

As a *wh*-construction, they involve subject-verb inversion and the impossibility that Spec,T be occupied by either the subject or an adverb. C^0 is filled by the complementizer *que*. As a degree construction, exclamatives include a DegP headed by *tan* ('so'), *més* ('more') or *que* ('how'), which is interpreted as a degree operator with a [+wh] feature. This DegP selects for an AP, which is headed in turn by a gradable adjective. In this thesis a connection has been established between exclamatives, result clause constructions and paradigmatic comparatives, because they contain the degree operators *tan* and *més* and they require that the degree that is pointed at be high.

Regarding the semantics of degree, the degree operator *tan* relates the actual degree of ADJ-ness that holds of an individual and a standard degree that is high. Whereas for *tan* the relation between the two degrees is $\succeq$, *més* has the same semantics, but the relation that is established is $\succ$.

Finally, I have proposed that an exclamative denotes a fact. Its propositional content is taken for granted by the speaker, who utters an exclamative to update the commitment set of the addressee by contributing his/her attitude caused by the high degree of ADJ-ness that holds of an individual. Since the intention of the speaker is not to reduce the commitment set of the addressee by reducing the set of worlds that are incompatible with the proposition contained in the exclamative, then this type of clause, though it resembles an assertion in important respects, is not a suitable answer to a question.

6.2 Advantages of this proposal

One of the main contributions of this thesis is that it draws a neat distinction between the role of semantics and the role of pragmatics. More specifically, I have proposed that exclamatives include a descriptive content that is not asserted, but which denotes a fact according to which

an individual is ADJ to a high degree. This fact is not the content the speaker intends to update the Common Ground with, so I have argued that the utterance of this type of clause inevitably involves the expression of the speaker's emotional attitude towards a degree, and this is precisely the information that is used to update the Common Ground. This account differs from previous accounts in significant ways: First, I have left aside the alleged analogy between the semantics of questions and the semantics of exclamatives. Second, I have assumed that high degree denotation is not the result of a scalar implicature, but – at least in the cases of exclamatives in Catalan that I have studied – it derives from the semantic composition of the components of the clause. And third, instead of stipulating a pragmatic inference to argue in favor of high degree denotation, I have proposed that the emotional attitude experienced by the speaker and not a scalar implicature is what covers the informal characterizations of exclamatives according to which they involve surprise or unexpectedness.

The previous proposals based on the semantics of questions are able to capture a number of facts, most of all referred to exclamatives in English. But they are not theoretically uncontroversial and left data from other languages, such as Catalan, uncovered. For instance, under Zanuttini and Portner (2003)'s account, widening is applied to the quantificational domain of *wh*-phrases. These authors borrow the term proposed in Kadmon and Landman (1993) and some of its properties, such as the bound of a scalar term to a quantificational domain and the expansion from an initial domain to a larger one, but they do not derive other properties that items that undergo domain widening have. For instance, polarity sensitive items have a competitor with which they share part of their semantics, and the expansion of the domain is not due to factivity, but it is an essential part of their meaning, and it occurs whenever they are licensed. And, most importantly, they are licensed in very precise environments. On the other hand, quantificational items also generate domain widening, but these are scalar items; that is, they are part of a scale such that items on the right entail items on their left, and this is not the case of *wh*-quantifiers. In contrast, the responsible for high degree is *tan*, a polarity sensitive item that is only licensed in certain contexts (actually, the same that license *any*) and it can be said that it has a competitor, namely *així de*.

Furthermore, the proposal in this thesis does not need to postulate that there is a formal feature FAC that is not overtly realized. Actually, I do not claim that exclamatives are factive. Instead, the proposal is that their propositional content is a fact, in the sense that the speaker

does not assert this descriptive content, because it is in the background.

Another interesting aspect of this thesis is the interpretation of an exclamative as a special kind of degree construction. Empirical evidence coming from Catalan pointed at this direction, because there is an overt degree operator in exclamatives that other degree constructions such as result clause constructions and paradigmatic comparatives also contain. Moreover, this contribution allows us to state what the basic ingredients of an exclamative are. More precisely, we can predict which of the *wh*-words are able to introduce an exclamative without the need of stipulating that there is an E-only morpheme. Recall that Zanuttini and Portner (2003) interpret *tanti* in *che tanti* ('how many') as a word that should be broken down into two: *t+anti*, where *t* is the E-only morpheme and *anti* is the measure, attempting at an identification with *very many* in the English construction *how very many*. If, instead, a degree operator is one of the essential components of an exclamative, *tanti* can be construed as the degree operator as a whole and it makes sense, because it occurs in other degree constructions aside from exclamatives, where there would not make much sense to consider that *t* is an E-only morpheme. Another effect of this claim is that some of the non-E-only *wh*-words that are supposed to introduce exclamatives (as Ambar (2003) and Zanuttini and Portner (2003) assume) do not introduce exclamatives, but interrogatives (or other *wh*-constructions that need to be analyzed) that are not employed as questions.

Additionally, I have shown that the degree word *tan* ('so') can be considered a polarity sensitive item, since it occurs in the same contexts as the negative polarity item *any* and it cannot occur in positive contexts. Interestingly enough, this turns an exclamative as a proper licensor context, and this fact is an open door for further research about the characterization of the environments that license polarity items.

Moreover, this thesis also presents interesting data regarding the existence of embedded exclamatives. So far it had been taken for granted in the literature that exclamatives could be introduced by factive predicates, and to account for the data in languages such as Catalan, it had to be assumed that degree relatives where actually their counterparts, without paying attention to the question as for why *wh*-exclamatives could not embed in these predicates. The consequences of posing this question are numerous. The most important one might be the need to reconsider the existence of embedded exclamatives. This possibility had already been proposed, so alleged exclamatives had been claimed to be interrogatives embedded in surprise

or exclamative predicates. However, Catalan provides evidence in a different direction: Maybe *wh*-clauses embedded in emotive factives are free relatives.

6.3 Open issues

Admittedly, at the end of this thesis many questions have remained unanswered, mostly because one of my goals was to explain the maximal amount of phenomena with the minimal amount of machinery and stipulations.

To start with the syntax of *wh*-movement in exclamatives, it would be interesting to find a motivation for them landing somewhere farther than interrogatives without the need to resort to semantic flavored peripheral projections, or a motivation for the presence of the complementizer in the former and not in the latter.

Concerning the semantics, it is still unclear why *més* ('more') and *tan* ('so') are exchangeable in an exclamative environment if their denotation is different and so it surfaces in other constructions. A crosslinguistic study that touched upon the presence or absence of degree operators in exclamatives would shed some light in this subject.

As far as the link between syntax, semantics and pragmatics, the establishing of a link between *wh*-movement, the treatment of the clause's descriptive content as a fact and the non-assertive contribution to discourse of this type of clause remains a challenge. What has been made clear in this thesis is that there is a need for a more thorough research on the semantics of *wh*-constructions, since the idea that *wh*-interrogatives denote a set of alternatives that correspond to the answers to the question expressed by the *wh*-clause is problematic. It would be interesting to explore a possible unified semantic account for all *wh*-constructions. And a further interesting area of study would be to analyze the kind of meaning this attitude towards degrees is and how exactly it is generated.

Another issue that could be the topic of further research is the notion of sentential force and of clause typing. It would be interesting to make a crosslinguistic study of exclamatives, think about what – if any – is their sentential force and try to identify a property that they all share and which can be claimed to type the clause as an exclamative. A very related topic is that of embedded exclamatives. If embedded clauses introduced by *what a* and *how very* in English are to be considered exclamatives, in what way do they differ from matrix exclamatives? What sentential force are they devoid of when they embed? And how is the

crosslinguistic difference between the embedding restrictions in English and Catalan accounted for?

An additional research project would be to follow the hint of the proposal suggested in this thesis by which *tan* is a polarity sensitive item. Specifically, it would be interesting to examine the licensing conditions of this item, analyze whether it parallels the other polarity sensitive items with respect to the emergence of domain widening and shed some light on the licensing of the other polarity sensitive items.

Also, the concept of exclamation deserves to be paid some attention to. Recall that in this thesis, it has been pointed out that what exclamations have in common is a non-assertive accentual pattern, but not a common way to update the Common Ground. In particular, it should be made clear whether it has to be considered a speech act along with assertions and questions.

6.4   Epilog

Although it may seem that exclamatives have been approached in a rather general manner, I thought it was the most appropriate way to proceed given the shortage of literature and the diverse nature of the facts to cover. It seemed that pursuing a global view of exclamatives would be the right move in order to define whether the puzzles that had been highlighted for English and the ones that Catalan presented were syntactic, semantic or pragmatic in essence. Obviously many questions remain unanswered, but at least the way has been paved for more-fine grained future proposals.

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