

Exclamative Clauses: At the Syntax–Semantics Interface*

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Abstract

One central issue in the theory of clause types is whether force is represented in the syntax. Based on data from English, Italian, and Paduan, we examine this question focusing on a less well-studied clause type, exclamatives. We argue that there is no particular element in syntax responsible for introducing force. Rather, there are two fundamental syntactic components which identify a clause as exclamative, a factive and a Wh operator. These are crucial because they are responsible for two fundamental semantic properties characteristic of exclamatives, namely that they are factive and denote a set of alternative propositions. The force of exclamatives, which we characterize as ‘widening’, is derived indirectly, based on the semantic properties.

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1 Exclamatives and the notion of Clause Type

Sadock and Zwicky (1985) define clause types as a pairing of grammatical form and conversational use.¹ In this paper we use this notion of clause type as we examine one of the less commonly discussed types, exclamatives. Within the class of exclamatives we include sentences like *What a nice guy he is!*, which associate a variety of syntactic features with a specific conversational use. In general, scholars have approached the characterization of clause types in a way which is very natural given a definition like Sadock & Zwicky's: they ask how the conversational use is represented in the form. There are two main approaches here. On the one hand, one finds analyses which postulate a morpheme or grammatical feature representing a sentence's illocutionary force. On the other, there are construction-oriented theories which characterize a class of structures and link this class to the pragmatic use directly and as a whole.

We believe both of these perspectives leave out a level of analysis: the sentence's denotation, i.e. compositional semantic interpretation.² The denotation mediates the form/use relationship, and plays a crucial role in the analysis of both sides of the pairing. In terms of form, we propose that the class of exclamative structures is defined as comprising those which encode two crucial properties of meaning. That is, a sentence is an exclamative if its denotation has these two properties. We investigate in some detail the syntactic characteristics of this class of sentences, focusing in particular on how the crucial aspects of meaning are represented. In terms of use, we suggest that the two semantic properties in question imply that the sentence's use is as an exclamative, provided that we understand the notion of use properly. We also spend a significant proportion of the paper clarifying the relevant concept of use and its application to exclamatives.

Let us provide a bit more detail on what our proposals are. We identify the following two syntactic properties which define the class of exclamatives:

- (1) a. Exclamatives contain a **wh operator–variable structure**.
- b. Exclamatives contain an **abstract morpheme F** in the CP domain.

These two properties characterize exclamatives because they contribute the two crucial components of meaning to the denotation:

- (2) a. Exclamatives denote a set of **alternative propositions**, a result of the operator–variable structure.
- b. Exclamatives are **factive**, i.e. their propositional content is presupposed; this presuppositionality is the result of the abstract morpheme F, which is thus an example of the factive morpheme proposed in previous literature on complement clauses.

These aspects of our proposal explain the similarities across languages between exclamatives and interrogatives. Since both denote sets of propositions, their syntax is alike in respects which give rise to this aspect of their meanings. The need to host the abstract morpheme expressing factivity explains certain subtle differences between exclamatives and interrogatives which have been noted in the literature on Romance.

The 'use' of exclamatives is analyzed in terms of another fundamental concept, that of WIDENING.

- (3) Exclamatives **widen the domain of quantification** for the wh operator which gives rise to the set of alternative propositions denoted by the sentence.

Widening allows us to capture those aspects of the meaning of exclamatives which have been informally described as 'a sense of surprise', 'unexpectedness', 'extreme degree' and the like. Widening is not in general

¹More precisely, the set of clause types within a language forms a closed system in that:

1. 'There are sets of corresponding sentences, the members of which differ only in belonging to different types.'
2. 'The types are mutually exclusive, no sentence being simultaneously of two different types' (Sadock & Zwicky 1985: 158).

²It should become clearer below just which aspects of meaning we include here. We mean to cover all components of meaning which are derived in accord with strict compositionality, including truth conditions, presuppositions, and the like.

directly encoded in the syntax; it is, however, derived from the denotation on the basis of pragmatic reasoning. As we discuss in detail, the basic reasoning is that widening is the only use available to root sentences with the two semantic properties in question.

The role of widening in our analysis should be clearer if we relate it to the familiar concept of force. The most commonly invoked notion of force is that of illocutionary force; however, this is not the right sense of force for the characterization of clause types. The illocutionary force of a sentence, as defined by e.g. Searle (1965), incorporates the Gricean analysis of meaning as intentional: ‘In speaking a language I attempt to communicate things to my hearer by means of getting him to recognize my intention to communicate just those things’ (Searle 1965: 258). A sentence would thus have the illocutionary force of ordering if and only if the speaker intends to impose an obligation by getting the hearer to recognize this intention. According to such a definition, since someone saying *Could you come in at 9:00?* may have the relevant intention, the sentence would in such cases have the illocutionary force of ordering. But this shouldn’t lead to the conclusion that it is an imperative. Crucially its form is that conventionally associated with the force of asking. We label the force conventionally associated with a sentence’s form its *sentential force*, following Chierchia & McConnell-Ginet (1990) (an alternative terminology is *sentence mood*, e.g. Reis 1999). In some cases, such as our example, a sentence whose sentential force is that of asking may have the illocutionary force of ordering.³

Likewise with exclamatives, we need to distinguish illocutionary force from sentential force. While members of various clause types may be associated with the illocutionary force of exclaiming, only members of the exclamative clause type are conventionally associated with this sentential force. Certain structures have traditionally been seen as clear examples of this clause type, for example:

- (4) a. What a nice guy he is! (cf. *What a nice guy is he?)
 b. How very tall she is! (cf. *How very tall is she?)

Both of these have an initial WH constituent, but they differ from interrogatives in that they cannot occur with subject-auxiliary inversion. In addition, their WH phrase contains an extra element not possible in interrogatives, *a* in (4)a and *very* in (4)b. Despite the presence of such clear cases, there are other examples which are not so clear. We develop explicit criteria for defining the class of exclamatives; this proves useful for two reasons: First, they help us to decide the status of more marginal examples like (5)a and (5)b in which the illocutionary force is not equivalent to the sentential force:

- (5) a. He’s so cute! (Declarative)
 b. Isn’t he the cutest thing! (Interrogative)

Second, they reveal some of the important properties of exclamatives which any theory of this clause type must explain. We see the development of explicit criteria for exclamative status as one of the main contributions of this paper.

Our concept of widening may be taken as a precise proposal concerning the sentential force of exclamatives. This sentential force is not directly encoded in the syntax, but it is derived from those meaning components which are. A sentence which both denotes a set of alternatives and is factive isn’t a plausible candidate for any of the other available sentential forces: asserting, asking, or ordering.⁴ Our proposal differs from those which see force as being directly represented by a syntactic feature or morpheme: While force can ultimately be traced to syntactic properties, these properties do not themselves encode force. It also differs from approaches which associate a given force with a class of structures without a compositional basis for the link between them. In our analysis, syntactic structures are compositionally interpreted, and the denotation

³It isn’t clear whether this kind of example should be seen as having the illocutionary force of asking in addition to that of ordering. While interesting, this issue doesn’t affect the point that it is necessary to distinguish the grammatically encoded force from other types of force.

⁴Something we won’t discuss here, but which is ultimately crucial to understanding clause types (in particular on our way of thinking about them), is what defines the set of possible sentential forces across languages. For example, it appears that no language has a separate clause type for the function of threatening, and it is certainly important to at some point ask why.

which thus comes about is the basis for deriving the force.

2 Previous approaches to the syntax of force

Before we examine in detail the nature of exclamatives, we consider some of the ideas present in the literature concerning the nature of clause typing. One prominent idea is that a force-indicating feature or operator is central to the analysis of individual clause types. Thus, for example, we have imperative force features and question operators used to motivate movement in these types. As we suggested in the introduction, however, we do not pursue this approach. For one thing, such an element does not seem helpful in accounting for the diversity of structures found among exclamatives. In particular, it is hard to see how such a morpheme would let us unify both ordinary clausal exclamatives and nominal exclamatives like *The things he eats!* Even the diversity within clausal exclamatives seems too much for a single force feature to account for (Zanuttini & Portner 2000). Moreover, even for the clause types where the idea has been pursued, there are many problems with the proposal that force is syntactically realized in terms of a single element or feature. In this section we point out these difficulties.

In a number previous works, a force-indicating element has been proposed for the analysis of a particular clause type (almost exclusively imperatives and interrogatives), rather than for all members of the clause-type system⁵. Authors focusing on other issues will at times invoke a force indicating feature for a narrow range of cases. For example, an illocutionary feature has been used to trigger the verb-initial order of non-negative, non-polite-form imperatives in Spanish or Italian (e.g. Rivero 1994a, Rooryck 1992, Graffi 1996). The goals of such papers aren't necessarily to consider the full range of structures which exemplify a particular clause type, and so they are of less relevance to us here. Others make more general claims about at least one clause type; among them are Pollock (1989), Cheng (1991), den Dikken (1992), Platzack and Rosengren (1994), Rivero (1994b), Henry (1995, 1996), Michaelis & Lambrecht (1996a, 1996b), Rivero & Terzi (1995), Rizzi (1997), and Han (1998). Of these, Platzack & Rosengren and Han specifically make claims about how clause types are marked in general, not limiting their claims to a particular type.

We begin by outlining some of the proposals which use a force-indicating element in the analysis of imperatives and interrogatives. In general, we find three main points of view concerning the location of the force-indicating element: (i) force is always represented in C; (ii) force is consistently associated with one projection within a given language, but whether this projection is I or C may vary from language to language; and (iii) force is underlyingly represented in I, though it may undergo movement to C in some circumstances. Beginning with imperatives, certain Romance and Balkan languages, among them Spanish, Italian, and Modern Greek, have morphological forms particular to positive, non-polite-form imperatives. This is illustrated by the contrast between the imperative and declarative in (6), from Italian. The imperative verb in (6)a is morphologically unique in that it only occurs as a second person form in imperatives (though it can be a third person indicative); it has a unique syntax as well, obligatorily preceding the object clitic *le*.

- (6) a. Telefonale! (Italian)
 call.imp-her
 'Call her!'
 b. Le telefoni troppo.
 her call.indic.2sg too-much
 'You call her too much.'

Much of the literature on Romance imperatives proposes that the word order in (6)a results from the verb moving to C. The trigger for such movement is the presence of some element associated with the force of imperatives.

⁵Wechsler (1991) is an exception, considering declaratives in some detail as well.

Preverbal markers of sentential negation are incompatible with imperatives of this kind. A suppletive verbal form (drawn from the indicative, subjunctive, or infinitive paradigms) is used instead. In (7)b from Italian, the verb takes its infinitival form:

- (7) a. *Non telefonale!
 neg call.imp-her
 b. Non telefonarle!
 neg call.inf-her
 'Don't call her!'

Both Rivero & Terzi (1995) and Han (1998) utilize the proposed imperative operator in C to account for this incompatibility. Rivero & Terzi claim that the negative marker, a head which intervenes between I and C, blocks the verb's ability to move to the force indicator. Crucial to this approach is the assumption that the verb and negation cannot form a unit and move together to C. A difficulty is that other constructions within these languages do seem to show the verb forming a unit with negation (e.g. so-called Aux-to-Comp constructions, Rizzi 1982). Moreover, in at least one language discussed by Rivero & Terzi, Serbo-Croatian, the verb can form a unit with negation, as shown by the fact that a preverbal negative marker is compatible with a verb-initial order in imperatives (as well as other clause types). This raises the question of why this option is possible in Serbo-Croatian and not in other languages.

Han responds to these issues by allowing the verb to move to C in all cases. In the presence of a preverbal negative marker, she claims that the resulting structure is semantically uninterpretable. Specifically, the following structure is derived (Han 1998: 42):

- (8) $[_{CP}[C[_I Neg I][C Imp]] IP]$

Following Kayne's (1994) definition of c-command, the negative marker asymmetrically c-commands the verb (within I), and thus takes scope over it. She makes two other crucial assumptions as well: first, that the verb takes over the force-indicating function of the imperative operator, and second that in general a sentence's force cannot be negated or be within the scope of negation (these alternatives are not clearly distinguished). Hence, she concludes that the configuration in (8) is semantically ill-formed.

Difficulties arise for these approaches when they attempt to extend their ideas to languages which do allow negated imperatives. Rivero & Terzi discuss the case of Ancient Greek, which lacks a special syntax for imperatives. The only case which gives rise to verb-initial order, for imperatives as well as declaratives, is when this is necessary to provide an enclisis site for second-position clitics. They account for the lack of an inversion operation specific to imperatives by proposing that the feature encoding imperative force is located in I rather than C in this language. Han, in contrast, maintains for languages that allow negated imperatives the idea that force is encoded in C. There are two classes of such languages. On the one hand, French and other languages with post-verbal negative markers can form negative imperatives simply because I to C movement can take place without movement of the negative marker, which therefore will not take scope over the force indicator. She assumes the *not* of *Do not do that!* to be like French *pas* in this regard. On the other hand, Han assumes that in English examples like *Don't do that* the negation does move along with the auxiliary to C. However, the resulting configuration differs from that derived for Italian, Spanish, and Modern Greek in that *n't* does not end up c-commanding the force indicator:

- (9) $[_{CP}[C[_{Neg} I Neg][C Imp]] IP]$

Notice that in (9) I is adjoined to negation, and not the other way around as in (8). For this reason, *do*, which is in I and has taken over the function of the imperative operator, c-commands negation. The resulting scope configuration is interpretable, as negation does not take scope over directive force.

Turning now from imperatives to interrogatives, many authors have accounted for verb-movement in the latter in terms of an element in C which indicates that the clause is a question. This element has been instantiated as the Q morpheme or WH feature originating with Katz & Postal (1964) and Baker (1970) and

employed in much subsequent work. This element bears an obvious similarity to the one invoked in the case of imperatives, and so it is tempting to view it as a force-indicating element as well. (Of the works we are aware of, only Han's explicitly postulates a force-indicating element in C for interrogatives.) A problem with doing this is that this feature is utilized in both main and embedded clauses, and it is not typically assumed that embedded clauses have force. We can think of two possible directions to pursue here. It might be that the Q morpheme or WH feature only counts as a force-indicator in root clauses, and that when selected by a higher predicate it is semantically inert. Alternatively, it could be that sentential force is represented in both root and embedded clauses, but in the latter case it is ignored by subsequent semantic computation.⁶

Most discussions of the Q morpheme or WH feature assume it to be located in C. An interesting variant is that of Rizzi (1996). He proposes that in root clauses the WH feature is underlyingly associated with I; it then moves to C in order to instantiate a configuration of spec-head agreement with an appropriate wh operator in [spec, CP]. Thus, as with imperatives, within the discussion of interrogatives we find both I and C considered as the possible locus of force.

In light of this brief summary, we can now see why invoking a force-indicating element has not been able to explain the concept of clause type. A serious flaw with all of the theories we have considered so far is that they are applicable to only a subset of the structures which comprise each type.⁷ This is most clear in the case of imperatives. Recall that the basic facts in Italian, Spanish, and Modern Greek are that the morphological form specific to imperative meaning cannot be negated, as in (7)a, but sentences with imperative meaning in other morphological forms may be. This class includes both the suppletive forms used for negative sentences, as (7)b, and those used to express polite imperatives. Since these types of imperative do not involve verb movement to C, according to Rivero & Terzi's and Han's assumptions they do not contain the force-indicating element. Despite this, they share the same sentential force as the non-suppletive forms; that is, they are conventionally associated with the force of ordering just as much as so-called 'true imperatives'. Han appears to dispute this and claim that force is not syntactically represented in those suppletive imperatives based on subjunctive or infinitive morphology, suggesting instead that it is indicated 'via inference' (p. 57). Han's idea is that the infinitive/subjunctive operator expresses an irrealis interpretation compatible with directive force, and presumably incompatible with other forces like assertion. This approach seems to conflate the pragmatic notion of illocutionary force with sentential force. As noted in the Introduction, pragmatic inference may lead any clause type to be interpreted with any illocutionary force, e.g. declarative as a question, etc., but this is an aspect of interpretation beyond the pairing of form and sentential force which defines clause type. An alternative approach to dealing with those imperatives that do not show verb movement would be to suggest that force is represented in both cases, but only triggers overt movement in one (e.g. because it's 'strong' in one case and 'weak' in the other); this is Han's approach to those suppletive imperatives based on indicative morphology. Saying either that force comes 'via inference', or that the syntactic properties of the force-indicator vary from case to case, amounts to abandoning the idea of a uniform representation for sentential force.

A similar problem arises in some languages with interrogatives. In Paduan, for example, while positive yes/no questions involve inversion, those negated by the usual marker of sentential negation, *no*, do not.⁸

⁶This possibility would be implausible if we were working with a notion of illocutionary force, but given our narrower concept of sentential force, it is more likely to be workable. In line with the dynamic semantics idea that the meaning of a sentence is context change potential (or CCP, Kamp 1981, Heim 1982, among others), we might treat a sentential force as giving a sentence a certain kind of CCP. For instance, the force of assertion creates a CCP that updates the common ground, whereas that of an imperative affects the hearer's obligations. The meaning of the force indicator would then be to map any proposition onto the appropriate kind of CCP. For example, the CCP of a declarative sentence denoting proposition *p* is the function *f* which maps any context *C* onto *C'* which only differs from *C* in that *p* is in the new common ground. The effect of the force indicator can always be 'undone', retrieving from *f* the underlying propositional content: if *f* is applied to the empty context, i.e. that with nothing in the common ground, *p* can be recovered as the sole element of the common ground of *f*(*C*).

⁷Since they do not work with a force indicator, Michaelis & Lambrecht's (1996) approach is not subject to this criticism.

⁸Paduan is a Romance variety spoken in the Italian city of Padua. As shown by Portner & Zanuttini (1996), Paduan *no* actually has two, syntactically distinct forms. One is the ordinary marker of negation, while the other is a clitic and carries, in addition to negative meaning, a particular scalar implicature described in the reference cited. Here we focus on ordinary negation. In the Paduan data, the gloss *s.cl* stands for 'subject clitic'.

- (10) a. Vien-lo? (Paduan)
 comes-s.cl
 ‘Is he coming?’
 b. *No vien-lo?
 neg comes-s.cl
 c. Nol vien?
 neg-s.cl comes
 ‘Isn’t he coming?’

If inversion results from the presence of a force indicating feature in C, the lack of inversion in (10)c would lead one to conclude that there is no such feature. That is, negative questions, like the negative imperatives discussed above, would differ from their non-negative counterparts in lacking the syntactic representation of force. And yet they are just as fully interrogatives as their non-negative counterparts. The alternative of saying the force-indicating feature is strong in positive clauses but weak in negative ones gives up on the idea that the members of a clause type are unified by sharing a single syntactic feature.

The basic problem we are faced with is that the syntactic operation giving rise to verb-initial order does not correlate with the a particular force which defines a clause type. Thus, in the languages under discussion at least, there is no justification for tying the verb’s behavior to any feature which encodes force or clause type. It would be simpler to have a single feature triggering all cases of verb movement to C. In Italian and Spanish this would bring together positive imperatives and interrogatives, leaving aside their negative counterparts as well as declaratives.⁹

The approach to exclamatives which we pursue here doesn’t rely on a force-indicating feature or operator at all. While it’s possible that such an element is present, it is not what shapes the members of the class. Rather, what is shared by all exclamatives is the need to represent in the syntax those two semantic properties mentioned in the introduction: that exclamatives are factive and that they denote a set of alternative propositions. It is worth wondering whether a similar analysis could be developed for other clause types, but we will not pursue this in the present paper.

3 Criteria for identifying exclamatives

In this section we establish a number of criteria for identifying exclamative clauses, drawn from Zanuttini & Portner (2000) and Portner & Zanuttini (2000). We identify three properties which distinguish exclamative clauses and show how they give rise to criteria which help us pick out members of this class. The three properties are: factivity, scalar implicature and inability to function in question/answer pairs. At this point our goal is only to establish criteria; we provide an analysis of each of the properties in section 4.

Like us, Obenauer (1994, section 2.4) also provides criteria for determining the class of exclamatives. Concentrating on data from French, he focuses on certain WH phrases, like *quelle chance* (‘what luck’) and *quel génie* (‘what genius’), that can only occur in exclamatives:

- (11) a. Quelle chance tu as eue! (Obenauer 1994: 364)
 what luck you have had
 ‘What luck you’ve had!’
 b. *Quelle chance as-tu eue!
 what luck have-you had
 ‘What luck have you had?’

⁹This line of reasoning follows the assumption made by many in the literature that positive interrogatives in Italian and Spanish involve inversion. The matter is subject to debate because of the range of subject positions available in these languages. Paduan presents a more clear case; the relative order of verb and clitics provides direct evidence for inversion in all positive interrogatives and imperatives.

He then takes their syntax to be definitive of the syntax of exclamatives in general. Thus, since these WH phrases disallow inversion and cannot remain in situ, he concludes that if a WH structure is to be classified as an exclamative in this language, it must not involve inversion or WH in situ. This classification appears to accurately pick out just the class of WH exclamatives in French. Notice, however, that Obenauer's criteria are purely syntactic, and so they can only be counted on to single out a syntactically relevant class (this is similar to Rivero & Terzi's (1995) class of imperatives involving V to C movement). This methodology cannot assure us that all sentences with the relevant sentential force are classified as exclamatives. Since the notion of clause type which we investigate in this paper is defined as a pairing of form and sentential force, we need to make sure that the criteria are not too narrow, thus picking out only a syntactically coherent subset of the clause type. In other words, we need to make sure that we are not leaving out other types of exclamatives in the same way that some of the literature on imperatives left out those which do not involve verb movement to C.

For these reasons, our criteria for exclamative status are built on the three semantic properties mentioned above. The first property, factivity, was first pointed out by Grimshaw (1979).¹⁰ The factivity of exclamatives is shown by two facts. First, they can only be embedded under factive predicates, as seen in (12):^{11,12}

(12) Mary knows/*thinks/*wonders how very cute he is.

Second, when they are embedded under a verb like *know* or *realize*, in the present tense and with a first person subject, this verb cannot be negated, as seen in (13):

(13) *I don't know/realize how very cute he is.

Intuitively, the problem with (13) is that denying the speaker's knowledge conflicts with the factive presupposition generated by the exclamative.¹³

The second property, which we refer to as *scalar implicature*, relates to the intuition that exclamatives convey that something is surprising or noteworthy in some way. Exclamatives introduce a conventional scalar implicature to the effect that the proposition they denote lies at the extreme end of some contextually given scale. Thus, *How very cute he is!* indicates that his degree of cuteness is greater than the alternatives under consideration, and this aspect of its meaning can be labelled an implicature because it goes beyond the sentence's truth-conditional meaning. It must be a conventional, rather than a conversational, implicature because it is non-defeasible (as seen in (14)a) and detachable (cf. (14)b, which shows that the implicature is tied to the sentence's form, not its semantic content):

(14) a. ??How very cute he is! – though he's not extremely cute.
b. He's quite cute! – though not extremely cute.

We note that our identification of this meaning-component as an implicature is provisional; in section 4.3.2 we treat it as arising from a deeper feature of exclamative meaning.

The property of scalar implicature explains two facts. The first, pointed out by Elliott (1974), is that exclamatives cannot be embedded under *It isn't amazing*, though they can be embedded under its positive counterpart:

¹⁰Michaelis & Lambrecht (1996a, 1996b) incorporate a similar property, 'presupposed open proposition', into their account. This property is paraphrased in a way that makes it appear equivalent to Grimshaw's notion of factivity.

¹¹This is not to say that all factives allow exclamative complements. For instance, *regret* doesn't allow WH complements in general, as pointed out by a reviewer.

¹²The effects of factivity are somewhat different in WH complements than in declarative complements, as discussed in Berman (1991). Note also that the non-factive predicate *believe* has a special factive use in sentences of the form *I can't believe ...* or *You wouldn't believe ...*, and as expected in these cases it can have an exclamative complement: *I can't believe how very cute he is!* (Grimshaw 1979:319).

¹³In certain pragmatic circumstances, an exclamative may serve to provide new information. For instance, when I return from seeing my friend's baby for the first time, I may say *What a cute baby he is!* We can see this case as introducing the proposition that the baby is very cute via accommodation (Lewis 1979), parallel to examples like *I didn't know that she had a new baby.*

- (15) a. *It isn't amazing how very cute he is!
 b. It is amazing how very cute he is!

The second, related property is that (15)a becomes good if it is questioned, whereas (15)b becomes ungrammatical:

- (16) a. Isn't it amazing how very cute he is?
 b. *Is it amazing how very cute he is?

The intuitive reason why (15)a is unacceptable is that it denies the amazingness of his cuteness, and this amounts to contradicting the scalar implicature. A parallel explanation holds for (16)b, where the interrogative questions the amazingness of his cuteness, thus casting doubt on the implicature. In contrast, (16)a is acceptable because a negative question expects a positive answer, and thus the pragmatics of this sentence supports the implicature of extreme cuteness.

The third property distinguishing exclamatives from interrogatives and declaratives is their inability to function in question/answer pairs. Obviously, interrogatives characteristically serve to ask a question. Exclamatives may not do so.

- (17) A: How tall is he? B: Seven feet.
 (18) A: How very tall he is! B: *Seven feet. / He really is! / Indeed! / No he's not!

The response *Seven feet* in (17) provides the information requested by A's question; that is, it is an answer. (Theories of the semantics and pragmatics of questions provide a more formal and precise characterization of what it is to be an answer. For our purposes, we may leave the notion at an intuitive level.) In contrast, the same response in (18) is unacceptable when taken as an answer; to the extent that it's acceptable, it indicates agreement with A's presupposition, like *He really is!* and the other responses given.

Another criterion arising from the fact that exclamatives do not introduce a question into the discourse is their contrast with interrogatives in patterns like the following:

- (19) How tall is he? Seven feet or eight feet?
 (20) How very tall he is! *Seven feet or eight feet?

In (19), the second phrase serves to narrow the preceding question, indicating that the answer is to be drawn from the set {seven feet, eight feet}. In this light, it is clear why (20) is unacceptable. The exclamation does not introduce a question, so there's nothing for the follow-up phrase to narrow.

The final criterion for identifying exclamatives is that, unlike declaratives, they cannot be used as answers:¹⁴

- (21) A: How tall is Tony's child? B: *How very tall he is!

With this set of criteria, we can now determine whether a sentence whose status is unclear should be

¹⁴Certain yes/no exclamatives may be exceptions here. Though the English exclamation in (i), pointed out by McCawley (1973), is not clearly a full clause, its Italian counterpart in (ii) is:

- (i) A: Is Tony's child tall? B: And how!
 (ii) A: E' alto il bambino di Toni? B: Eccome se è alto! (Italian)
 is tall the child of Tony and-how if is tall

We speculate that the conjunction which introduces B's utterance has something to do with why these are acceptable. Perhaps they conjoin an elliptical answer with the exclamation, as *Yes he is – and how!* or *Yes, and how he's tall!*

Another possible exception is the type seen in *Boy, is he!* or *Is he ever!* (McCawley 1973). We are not certain that these cases are truly exclamatives, however. They may be pronounced with falling intonation, like a declarative and unlike *And how!* They may be examples of Sadock's (1971) 'Queclaratives', sentences with the form of questions but the pragmatic force of assertion.

categorized as an exclamative. We can illustrate with examples (22)–(23) below:

- (22) a. Who could be cuter than you?
 b. Isn't he the cutest thing?
 (23) He's so cute!

With regard to the rhetorical WH question (22)a, we can see that it may be embedded under a nonfactive predicate ((24)a), and under *I don't know* ((24)b); thus it is not factive. It may be answered ((24)c) and it does introduce a question which may be narrowed ((24)d), thus patterning with interrogatives and not with exclamatives.

- (24) a. I wonder who could be cuter than you.
 b. I don't know who could be cuter than you.
 c. A: Who could be cuter than you? B: Nobody.
 d. Who could be cuter than you? Your brother or your sister? Not even them!

We cannot construct examples with (22)a that allow us to test for the scalar implicature of exclamatives. *Who could be cuter than you* may not be embedded under *amazing* at all, and so we cannot attempt to embed it under *It isn't amazing...* or *Is it amazing...* (In general, questions may not be embedded under *amazing*. Given this, we may use embeddability under *amazing* as an additional criterion to distinguish exclamatives from interrogatives.)

The rhetorical yes/no question (22)b can be answered, as seen in (25), and thus behaves unlike exclamatives:

- (25) A: Isn't he the cutest thing? B: Yes.

The other criteria are inapplicable, since a yes/no question cannot be embedded without major alteration of its structure. (One is hardly tempted to consider clauses introduced by *whether* or *if* as exclamatives, even in cases like *It isn't even a question whether he's the cutest thing!*) The only evidence available, then, namely the fact that it can be answered, leads us to consider (22)b an interrogative.

Finally, declaratives with *so* and *such* like (23) may be embedded under non-factive predicates ((26)a) and under *I don't know* ((26)b), thus failing the factivity test. When embedded under *amazing*, the sentence may be negated ((26)c) or questioned ((26)d), illustrating it lacks the scalar implicature of exclamatives. Moreover, it may serve as an answer ((26)e), once again patterning with declaratives and not exclamatives.^{15,16}

- (26) a. I think he's so cute.
 b. ?I don't KNOW that he's so cute.
 c. It isn't amazing that he's so cute.
 d. Is it amazing that he's so cute?
 e. A: Is he cute? B: He's so cute.

In the rest of this paper, we classify sentences as exclamatives based on these tests, though for reasons of space we will not give the full set of examples.

¹⁵The first three examples are natural with contrastive intonation on *so*, *know*, and *amazing*, respectively. Note that (26)b has the same intonation and interpretation as the sentence with an embedded declarative *I don't KNOW that he's 6'5"* cited in footnote 25. We take this as further evidence that it is an embedded declarative.

¹⁶Other authors, e.g. Elliott (1974), Michaelis & Lambrecht (1996a, b), Nelson (1997) consider examples with *such* and *so* to be true exclamatives. What we see here is that, according to our criteria, they are not. Michaelis & Lambrecht's theory implies an alternative set of criteria (a sentence is exclamative if it has all five properties mentioned in (30), to be discussed below). Our criteria have one important property which we find to be advantageous: they are mechanical in the sense that they may be applied without the need to provide any analysis of a candidate sentence, since they give us syntactic and discourse contexts into which only exclamative sentences may be inserted.

4 The semantic and pragmatic analysis of exclamatives

Our goal in this section is to provide a precise characterization of the sentential force of exclamatives. After outlining our proposal in section 4.1, we show how it is able to capture the informal, qualitative descriptions of what exclamatives do in terms of notions like ‘surprise’, ‘unexpectedness’, ‘emotional reaction’, and ‘extreme quality’ (section 4.2). We also discuss how it is able to explain the various semantic properties of exclamatives outlined above (section 4.3). Drawing on our own previous work, in this section and those following we make extensive use of data from Paduan. The reason for focusing on this language should become more apparent in section 5, where its unique syntactic properties become relevant.

As we discuss their semantic analysis, it is convenient to divide exclamatives in Paduan into two groups. Parallel to the distinction between WH and yes/no questions, we find both WH and “yes/no” exclamatives:

- (27) Che roba che l magna! (Paduan)
 what stuff that he eats
 ‘The things he eats!’
- (28) No ga-lo magnà tuto!
 neg has-s.cl eaten everything
 ‘He ate everything!’

Example (27) is introduced by an overt WH constituent, and rates some of the things that he eats as surprising compared to other, more normal food. In contrast, the example in (28) lacks an overt WH constituent; it compares the true proposition that he ate everything to the alternative that he didn’t, rating the former as less likely.

4.1 Two components of the meaning of exclamatives

The analysis we propose has two main components: *factivity* and *widening*.¹⁷ We discuss how these two aspects of the meaning are syntactically represented in section 5; for now, let us use $R_{factivity}$ to refer to the representation of factivity in the syntax and $R_{widening}$ to refer to that element in the syntax to which the pragmatic operation of widening will apply. The role of $R_{factivity}$ is straightforward. It introduces a presupposition that the propositional content of the exclamative is true. In terms of (29), this informally means that it is presupposed that he eats something.

- (29) a. Che roba che l magna!
 what stuff that he eats
 ‘The things he eats!’
 b. The things he eats!

As for the contribution of widening, we assume that $R_{widening}$ has the semantics of a quantificational operator. To see the role of this operator, let us consider the following context. We’re discussing which hot peppers some of our friends like to eat. The domain of quantification for $R_{widening}$, let us call it D1, is a set of peppers which contains (in increasing order of spiciness): poblano, serrano, jalapeño, and güero. Our friends who like spicy food tend to eat the poblanos, serranos, and occasionally jalapeños. About one of them, we say (29). In this context, the sentence implicates that he eats all types of peppers, not only all those in D1 but also, for example, the habanero, which is so spicy that it often makes people ill. Uttering (29) thus causes the domain of $R_{widening}$, D1, to be expanded to D2, including this additional type. This

¹⁷This concept of widening is related to that used by Kadmon & Landman (1993) in the analysis of *any*. Our use of the concept is quite different, however, and so we leave open whether there is any deeper connection. One reviewer points out that the use of *a* to create a wh phrase which can only occur in exclamatives (*what a nice guy*) may be linked to the NPI nature of minimizers containing the indefinite article (*She didn’t say a word*.)

expansion of the domain is the widening component of meaning of exclamatives. Widening, in this sense, is closely related to Obenauer’s (1994, p. 355) description of the meaning of exclamatives: the WH phrase binds a variable for which an appropriate value cannot be found in the contextually given domain. In order to find the appropriate value, one must look outside of the domain. Though Obenauer’s semantic ideas are not spelled out in more detail than this, they clearly bear a close intuitive similarity to our own proposal.

Another proposal that shares a similar intuition concerning the meaning of exclamatives is that of Michaelis & Lambrecht (1996a, 1996b). They present five “Semantico-Pragmatic Properties” of exclamative constructions (1996a: 239):

- (30) a. Presupposed open proposition
 b. Scalar extent
 c. Assertion of affective stance: expectation contravention
 d. Identifiability of described referent
 e. Deixis

Of these, (30)a–(30)c are related to our concept of widening. With respect to example (29), the presupposed open proposition ((30)a) would be something like ‘He eats x ’, where they interpret this as if the free variable is existentially bound: Intuitively, it is presupposed that he eats something. (30)b asserts that the possible values for x form a scale, while (30)c asserts that the actual value for x is higher on the scale than expected. This in turn gives rise to an implication of an ‘affective stance’ on the part of the speaker. Michaelis & Lambrecht’s theory resembles Obenauer’s in making reference to a variable being given an extreme value in some way, but differs in that Obenauer hypothesizes that this value cannot be found within the contextually given domain, while Michaelis & Lambrecht say that it is higher on the scale than expected. Our approach to widening is more similar to Obenauer’s in this regard.

We explicate the concept of widening in the context of a view of discourse semantics and pragmatics derived from the work of Stalnaker (1978). Stalnaker proposed that one component of the conversational context is the COMMON GROUND, the set of propositions mutually held as true, for purposes of the conversation, by the participants in a conversation at a given time. Presupposition may be defined in terms of the common ground: a sentence S presupposes P iff S cannot be felicitously asserted unless P is entailed by the common ground. For a sentence to be asserted is for the proposition it denotes to be proposed for addition to the common ground, and the assertion is successful if this proposition is indeed added. According to this conception, assertion is limited to sentences being used in the way that declaratives are canonically used. Other scholars have built on Stalnaker’s work in various ways, both refining his notion of assertion and making proposals concerning other sentence types like questions. For instance, Ginzburg (1995a, b) and Roberts (1996) propose that another component of the conversational context, in addition to the common ground, is a partially ordered set of question-denotations comprising the set of questions which the participants in a conversation mutually agree to try to answer. The conversational force of asking may then be defined in parallel to asserting. A sentence is asked if it is proffered (Roberts’ term) for addition to the question-set, and the asking is successful if it actually is added. The work of Lewis (1979) may be seen as a variant of this approach applied to imperatives. We seek to understand the role that exclamatives play in a conversation in terms of this overall way of conceptualizing meaning in discourse.

In light of this way of thinking, the factivity and widening components of the meaning of exclamatives can be seen as related to one another.¹⁸ Given that exclamatives are presupposed, certain functions for root occurrences of them are ruled out. Their sentential force cannot be that of assertion, since—being presupposed—the proposition they denote is already entailed by the common ground. They cannot be questions, because it would be pointless to ask a question where the answer is presupposed. Finally, they cannot be orders because one wouldn’t give an order to do something which one presupposes will be the case anyway.¹⁹ Assuming that each type of root clause must have some function, another type of function must be available for exclamatives, in particular a function which is compatible with their factivity. The role of affecting, in particular widening, the domain is a plausible one for them to have.

¹⁸This point was suggested to us by Manfred Krifka (personal communication).

¹⁹These points are related to the preparatory conditions on speech acts discussed by e.g. Searle (1965).

Our goal in the rest of this section is to formalize the contributions of factivity and widening. As discussed in the speech act theory literature (e.g. Austin 1962, Searle 1965), the illocutionary meaning of a sentence is made up of two components, a propositional part and a force. Building on their syntactic similarity to questions, we propose that the propositional part of the meaning of exclamatives is identical to that of questions, while the force will differ. In particular, we work with one prominent approach to the semantics of questions, the *proposition-set view* (Hamblin 1973, Karttunen 1977, Groenendijk & Stokhof 1984), according to which questions denote sets of propositions. We follow Karttunen in particular in treating questions as denoting their set of true answers. (The other proposition-set views could also be used.) Thus, the question *What does he eat?* might, with contextual restrictions on the domain of quantification, denote a set like {‘he eats poblanos’, ‘he eats serranos’, ‘he eats jalapeños’}. This same set would be the propositional content of (29)a, as given in (31).²⁰

$$(31) \quad \llbracket \text{che roba che l magna!} \rrbracket_w = \{p : p \text{ is true in } w \text{ and } \exists a [p = \text{‘he eats } a\text{’}] = \{ \text{‘he eats poblanos’, ‘he eats serranos’, ‘he eats jalapeños’} \}$$

Now we are able to examine how we can define widening within our approach. To do this, we need to discuss the notion of the domain of quantification for R_{widening} . In WH exclamatives, this is intuitively thought of as the set from which values for the WH phrase may be drawn; in (29), it would be the set of peppers $D = \{\text{poblano, serrano, jalapeño, güero}\}$. The semantics of the clause must then be given in terms of this contextually provided domain of quantification for R_{widening} and an ordering on a subset of D ; this is represented by subscripts as in $\llbracket S \rrbracket_{w,D,\prec}$. Given this, we propose that widening consists in the context change in (32):

$$(32) \quad \textbf{Widening:}$$
 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) $\llbracket S \rrbracket_{w,D2,\prec} - \llbracket S \rrbracket_{w,D1,\prec} \neq \emptyset$ and
- (ii) $\forall x \forall y [(x \in D1 \ \& \ y \in (D2 - D1)) \rightarrow x \prec y]$.

Here, $\llbracket S \rrbracket_{w,D2,\prec}$ is the set of true (in w) propositions of the form ‘he eats x ’, where x is drawn from the new domain $D2$, while $\llbracket S \rrbracket_{w,D1,\prec}$ is the corresponding set for the old domain $D1$. Saying that the difference between these two, $\llbracket S \rrbracket_{w,D2,\prec} - \llbracket S \rrbracket_{w,D1,\prec}$, must be non-empty amounts to requiring that new things that he eats be added to the domain. In the scenario outlined above, $D2$ would differ from $D1$ in containing habaneros, and the sentence would say that he even eats this very spicy pepper. Thus, the analysis can be seen as representing the intuition that (29) says that he eats any kind of pepper, and that if there is any sort he doesn’t eat, it’s beyond even the widened domain $D2$ and thus so far out that it’s not worth consideration.²¹

Turning to yes/no exclamatives, note that the Paduan example (28) above contains an instance of negation. Before we can discuss how widening applies to this case, let us point out some relevant facts which may be observed in negative yes/no questions. Let’s look at the following examples:

$$(33) \quad \begin{array}{l} \text{a. Did he eat everything?} \\ \text{b. Didn’t he eat everything?} \end{array}$$

²⁰Note that we differ from traditional speech act theory, according to which the propositional part of a sentence’s meaning is taken to be a single proposition. We think of it more broadly, as the compositionally determined semantic object in terms of which the sentence’s illocutionary force is defined.

²¹One could consider the possibility that the ordering represented by \prec is not part of the explicit content of widening, but rather that (32)(ii) is a pragmatic implicature which results from the simpler (32)(i). A case where this would potentially be problematical is the following: suppose that in the context of (29), the hearer has simply not been thinking of the jicama (a type of root vegetable). Then, one might expect that (29) could be uttered to draw attention to the fact that the set of relevant vegetables must be expanded. But such a use seems impossible, unless the jicama can be construed as extreme on some relevant scale, for example ‘unfamiliarity’; it can’t be an ordinary vegetable which the hearer has simply failed to consider. This point suggests that part (ii) of (32) is needed. However, there is a possible alternative. Suppose we require that any domain of quantification for R_{widening} be \prec -inclusive, in the sense that if x and y are in D and $x \prec z \prec y$, then z is in D . In that case, it would only be possible to widen, as in (32)(i), by adding an element which is extreme on the \prec scale. Thus, (32)(ii) might be unnecessary. We don’t take a stand on the choice between these alternative formulations here.

With regard to (33)a, the true answer might be either *he did* or *he didn't*. Thus, its propositional content is either {'he ate everything'} or {'he didn't eat everything'}, depending on which is true. In contrast, because (33)b is a negative question, it is implicated that the true answer should be *he did*; thus, the propositional content of the question must be {'he ate everything'}.²² Returning now to the yes/no exclamative, repeated below, its negation plays a similar role to that in the negative yes/no question (33)b:

- (34) No ga-lo magnà tuto! (Paduan)
 neg has-s.cl eaten everything
 'He ate everything!'

Because of the negation, (34) can be used to implicate that he ate everything. A situation in which this might be uttered is one where we are talking about a child who rarely eats all of his meal. On a particular occasion, however, he does. The fact that (34) is used in contexts where the child has eaten everything confirms the idea that it is appropriate to think of it as having a meaning analogous to (33)b.

Another thing we have to decide before the definition of widening can be applied to yes/no cases is what the domain of quantification for R_{widening} would be. Since there is no overt WH operator, we can't appeal to its domain, as we did above. We propose that this type of yes/no exclamative involves widening the domain of events under discussion; that is, we go from talking about 'normal' events of a certain type to considering even exceptional ones. In the case of (34), D1 would be the set of normal eating situations for the child we're talking about. R_{widening} would then say to widen D1 to D2 so as to add true propositions to the original proposition-set. Since a yes/no exclamative, like a yes/no question, denotes either a singleton set or the empty set, in order for this to be possible, two conditions must hold: First, the proposition 'he has eaten everything' must be true with respect to D2. And second, this proposition must not be true with respect to D1; that is, we must have added to the domain an unusual case in which he has eaten everything.²³ Noting the existence of such an unusual case is precisely what (34) does.

This description of the interpretation of yes/no exclamatives points to their similarity to the category of mirativity (DeLancey 1997; cf. also Friedman 1980, who uses the term 'admirativity', and Akatsuka 1985). DeLancey, discussing the close connection between mirativity and evidentiality, defines mirativity as marking "both statements based on inference and statements based on direct experience for which the speaker had no psychological preparation" (p. 35). An example of the latter case from Turkish is the following (DeLancey 1997: 38):

- (35) kiz-iniz çok iyi piyano çal-iyor-muş.
 daughter-your very good piano play-PRES-MIR
 'Your daughter plays the piano very well!'

The use of (35) appears to be quite similar to our (34), indicating that the quality of her piano playing exceeds what the speaker had expected. It may be that our analysis in terms of widening, in particular widening the set of events under consideration in yes/no exclamatives, could be useful in providing a formal grounding of the concept of mirativity (although widening—and the connection to exclamatives more generally—only seems relevant in the use of the mirative marker having to do with unexpected information, not that indicating inferentiality). Of course, doing this would require a detailed comparison between exclamatives and sentences marked as mirative in languages with this morphological category, something which goes beyond the scope of this paper.

Next we turn to a definition of factivity as it applies to exclamatives. Definition (36) says that any proposition which has been added to the denotation of the clause through widening is presupposed to be

²²If the implicature is false and the hearer answers by cancelling it (*No, he DIDN'T*), we can think of this in two ways. One possibility is that we take the semantics of a negative yes/no question to be the same as the positive one; then the propositional content of the negative question would be {'he didn't eat everything'} in this case. The other possibility is that the negative question has no true answer when its implicature is false; in this instance, its meaning would be the empty set.

²³The proposal would work equally well if the proposition-set is empty with respect to D1 or if it is {'he didn't eat everything'}. In either case, 'he ate everything' will be in $\llbracket S \rrbracket_{w, D_2, <} - \llbracket S \rrbracket_{w, D_1, <}$.

true:

- (36) **Factivity:** For any clause S containing $R_{\text{factivity}}$ in addition to R_{widening} , every $p \in \llbracket S \rrbracket_{w, D_2, <} - \llbracket S \rrbracket_{w, D_1, <}$ is presupposed to be true.

In the case of (29), the factive presupposition is that he eats this hottest pepper of all, the habanero. In the case of the yes/no exclamatives like (34), recall from the discussion of widening that its denotation with respect to the initial domain D_1 is the empty set, while that with respect to the new domain D_2 is ‘he ate everything’. The characterization of factivity in (36) generates a presupposition that this new proposition in $\llbracket S \rrbracket_{w, D_2, <}$ is true in w ; i.e. it’s presupposed that he ate everything. Notice as an aside that according to this reasoning the presupposed proposition, ‘he ate everything’, is not negative, despite the presence of the negative element *no*. In this way, we can account for the description of this case as containing ‘expletive negation’ (see also Portner & Zanuttini 2000).

4.2 Widening and informal descriptions of exclamatives

With this formal proposal in hand, we turn next to a discussion of how it can capture the intuitions behind various qualitative descriptions of the use of exclamatives. One frequently finds concepts like ‘unexpectedness’, ‘extreme degree’ and ‘speaker’s strong feelings’ applied to descriptions of exclamative meaning. However, we do not build our analysis on these concepts because they are difficult to make precise and because (as seen below) they do not always seem to be applicable. Instead, we show that these properties, to the extent that they characterize exclamatives accurately, can be derived from our concepts of factivity and widening.

One intuition is that exclamatives convey an unexpected fact. One way to think about this would be to take an example like *How tall Muffy is!* as saying that it was unexpected that she is tall. This cannot be correct in general, however, given examples like *What a delicious dinner you’ve made!* or *What a nice house you’ve got!* In these cases, the speaker doesn’t mean to imply that he or she didn’t expect a good dinner or a nice house. Rather, the speaker implies the tastiness of the dinner exceeds the range of possibilities previously under consideration, presumably something like the range of tastiness the speaker has experienced at other people’s houses. It doesn’t need to imply that the speaker expected anything less at this house. These examples might be described with the term ‘mirative’ (cf. DeLancey 1997, Friedman 1980). This way of describing the meaning of exclamatives is completely in accord with our approach, since widening the domain amounts to adding possibilities to those in the previously expected range. However, our approach makes clear that exclamatives have a different meaning from declaratives of the form ‘It is unexpected that p ’. Though exclamatives also convey the sense of unexpectedness, they do so through a different sentential force. That is, while the declarative *It is unexpected that she is as tall as she is* and the exclamation *How tall she is!* end up contributing similar information to the conversation, they do so through different routes: the former through assertion and the latter through widening.

Another way we could informally describe the meaning and function of exclamatives is by saying that they imply that an entity has some property to an extreme degree (cf. among others Milner 1978, Gérard 1980). For example, *How tall Muffy is!* says that Muffy has the property of tallness to a very high degree. While this is certainly correct, it cannot be a complete description since it doesn’t explain how the exclamation differs from declaratives like *Muffy is very/quite/extremely tall*. Our analysis in terms of widening can account for the intuition behind descriptions in terms of ‘extreme degree’. With a scalar word like an adjective as the head of the exclamation’s WH phrase, the domain of quantification for R_{widening} is a set of heights. These heights are organized into a scale, and a domain will naturally be taken as a continuous subpart of the scale, in that if 5’10” and 6’ are in domain of quantification, 5’11” will naturally be as well. Saying that the force of exclamatives involves widening the domain means that the subpart of the scale considered relevant for the case at hand must be extended. This will result in the inclusion of new heights previously considered too great for consideration, one of which will be that of Muffy.

In order to make this reasoning more precise, we’d need to cast it in terms of theories which have been

developed to account for the vagueness of scalar terms, comparatives, and the like (e.g. Russell 1905, Cresswell 1976, Hoeksema 1983, von Stechow 1984, Rullmann 1995, Kennedy 1997). In particular, the semantics must be framed in terms of degrees (e.g. of tallness) rather than simple quantities (like heights). Simply talking in terms of the latter wouldn't allow us to explain why extensions of the domain must be in a certain direction (in the case at hand, towards greater rather than lesser heights). We leave working this out further to future research.

A final way one might try to describe the meaning of exclamatives, in particular in contrast to declaratives, is by saying that they express the speaker's strong feeling towards what is being said. As it stands, this characterization is too vague to tell us much about the function of exclamatives; after all, it doesn't tell us much about what exclamatives do to simply know that one who says *How tall Muffy is!* has some feeling towards this fact. There are various ways in which we might try to make this intuition more precise. One possibility is to frame the contribution of exclamatives as conveying an emotional reaction of some sort. Thus, *How cute Shelby is!* can be seen as expressing adoration and *What a vicious dog I met on my bike ride!* as expressing fear. The sense that emotion is involved in these cases arises from the particular lexical items, and the scales they introduce, along with the force of widening. If Shelby is cute to a degree beyond what was contemplated before, this is naturally seen as the cause of adoration; likewise, if the dog the speaker met is vicious beyond what we had thought possible, it is plausible to conclude that it caused fear in the speaker. Furthermore, there are cases in which it's not so clear that any emotional reaction is being expressed by an exclamation: *How tall she is!* or *What a cool day it was yesterday in New Delhi!* Of course these may be seen as conveying emotion, though in many contexts it seems more relevant to say they simply indicate something surprising. But at this point, our concept of widening is able to provide a more formal characterization of the same idea. With the example *What a cool day it was yesterday in New Delhi!*, widening means that the temperature is below what we had considered as a relevant possibility before; learning that one's expectations are not met is precisely what gives rise to a feeling of surprise. However, this is the kind of case which very clearly need not generate an emotional reaction in the ordinary sense (for instance, if we take the exclamation as an offhand remark made over the morning paper's weather section).

To sum up, we have suggested that our notion of widening can account for various informal ways in which one can describe the function of exclamatives. The primary advantages of our approach are (i) that it is more precise, and (ii) that it makes clear the difference in force between exclamatives and declaratives like *It is surprising that . . .* which assert closely related content.

4.3 Returning to the Tests for Exclamative Status

Next we show how our formal analysis of the meaning of exclamatives is able to explain the data underlying the various tests for exclamative status introduced in section 3. Recall that the tests fell into three categories: factivity, scalar implicature, and question-answer relations. We look at each in turn.

4.3.1 Factivity

The reason our analysis is able to account for the factivity facts is simple: we have directly incorporated a factivity component into the semantics (see (36)). One effect of factivity is that exclamatives are incompatible with non-factive predicates, as was seen in (12). This follows from the presuppositional status of exclamatives, along with the point, noted by Grimshaw (1979), that non-factive predicates are incompatible with factive complements in general. That is, they are not merely *non-factive*, they are *anti-factive*. The following data makes this point ((37)a is from Grimshaw 1979; see also Kiparsky & Kiparsky 1970):

- (37) a. *John proposed the fact that they had gone to the movies.
b. John regretted the fact that they had gone to the movies.

Our factivity principle can also explain the ill-formedness of examples like (13) and (38) below:

(38) *I don't know how very tall Tony is.

The embedded exclamative is impossible because of an incompatibility between the factive presupposition and the lack of speaker's knowledge asserted by the sentence, given that its subject is first person singular. To show that this intuition follows within our formal implementation requires a certain amount of detailed work. First, we need to go over both the presupposition and the assertion of (38). We'll begin our discussion by looking at the positive version, (39):

(39) I know how very tall Tony is.

In order to calculate the factivity presupposition for the embedded exclamative, we must compare its denotation with respect to two domains, D1 and D2, each a set of heights (or more accurately, degrees of tallness). D2 is the actual domain at the time the sentence is used, while D1 is some other, smaller domain salient in the context. In the case of (39), we seem to be comparing Tony's actual height to what would be expected for a man like him. Supposing he is 6'5", but that men like him are typically no more than 6' tall, the two domains might be as follows:²⁴

- (40) a. D1 = {5'5", 5'6", 5'7", ..., 6}
 b. D2 = {5'5", 5'6", 5'7", ..., 6, 6'1", ..., 6'5"}

Given these two domains, it is presupposed via the definition of factivity in (36) that Tony is 6'5".

Notice that even in the case of an embedded exclamative like (39), we make use of two domains as part of the calculation of factivity. With root exclamatives, the two domains were those associated with widening. Since we have identified widening as the force of exclamatives, we don't expect it to occur with embedded examples as well (since they lack an independent illocutionary force). So, one might ask, what are these two domains? Looking at example (39), it appears that the two domains stand in the kind of relationship which would be appropriate for widening at the root level. Thus, D1 reflects the 'expected' values while D2 also contains more extreme values, all of which we know to be true. If such a D1 and D2 are not available in the context, the exclamative cannot be used. This would only come about if either of the following conditions were to hold: (i) we didn't have an expected range of values, or (ii) we didn't know what the true value was. But of course a failure in (i) would go against the very *raison d'être* of exclamatives, while a failure in (ii) would imply that factivity does not hold.

Given this factivity presupposition for the embedded exclamative in (39), we must now consider what the larger structures containing it presuppose. As observed by Karttunen (1973), a sentence of the form $\alpha V \phi$, where V is an attitude verb like *believe*, *know*, *claim*, *hope*, etc., presupposes that α believes whatever ϕ presupposes. Thus, *Mary knows that it stopped raining* presupposes that Mary believes that it was raining before. Hence, given the context we have set up, (39) presupposes that the speaker believes that Tony is 6'5". Example (38) has the same presupposition, since negative sentences inherit the presuppositions of their positive counterparts.

Recall that our goal is to show that this presupposition for (38) is in conflict with what it asserts. Given that we are treating exclamatives semantically like interrogatives, we can interpret *know* plus an exclamative in parallel to *know* plus an indirect question. Continuing to follow Karttunen's (1977) semantics for questions, (41) means that the speaker knows each (true) proposition in the denotation of *how tall Tony is*.

(41) I know how tall Tony is.

Applied to (39), this means that the speaker knows that Tony is 6'5". The negative counterpart (38) thus asserts that the speaker does not know that Tony is 6'5". But this is in conflict with the presupposition that

²⁴We present the degrees of height under consideration as specific numerical measurements (interpreted as 'at least n', so that all of the measurements in (40)b may be true). Only rarely would this be truly appropriate (e.g. in talking about basketball players), but it's simpler than discussing the example using terms like 'average height', 'a bit taller than average', 'pretty tall', etc.

the speaker believes Tony is 6'5".²⁵ This conflict, we claim, is the reason for the ungrammaticality of (38).

4.3.2 Scalar Implicature

Next we apply our analysis of widening to explain the facts attributed in section 3 to the scalar implicature of exclamation. These were (15)a and (16)b, repeated below along with their Paduan counterparts:

- (42) a. *It isn't amazing how very cute he is.
 b. *No ze incredibile che belo che el ze.
 neg is incredible how cute that s.cl is (Paduan)
- (43) a. *Is it amazing how very cute he is?
 b. *Ze incredibile che belo che el ze? (Paduan)
 is incredible how cute that s.cl is

Recall that we explained the ungrammaticality of these examples in terms of an incompatibility between the scalar implicature of the exclamation and the denying or questioning of the predicate *amazing*. Here we treat the scalar implicature as an effect of the comparison between two domains, the correlate of widening for embedded exclamation discussed in section 4.3.1. We show that this aspect of the meaning of exclamation is incompatible with negating or questioning *amazing*. (We only go over the explanation in detail in the case of negation (42); things work similarly for the question (43).)

To make this reasoning more precise, we must say exactly what the meaning of *amazing* is. We base the meaning of *amazing* when it takes an exclamation complement on the meaning when it takes a *that*-clause complement. Let us call the property denoted by the basic *amazing* which takes a *that*-clause **amazing***. The compositional meaning of the exclamation complement is a set of propositions. *Amazing*, being factive, presupposes that all of these propositions are true. Moreover, it asserts that some of these propositions are **amazing***.

$$(44) \quad \llbracket \text{It is amazing } E \rrbracket_{w,D,\prec} = 1 \text{ iff } \exists p \in \llbracket E \rrbracket_{w,D,\prec} [w \in \mathbf{amazing}_*(p)]$$

If *amazing* is negated as in (42), we deny that there is a proposition in the denotation of the exclamation which is **amazing***.

The scalar implicature, i.e. the domain comparison, of the embedded exclamation is calculated as usual. The context of use must provide the domains D1 and D2. In the case of (42), factivity says that all true propositions of the form 'he is *d*-cute', interpreted with respect to D2–D1, are presupposed to be true. As we have noted in section 4.2, D1 is frequently understood as providing the expected range of values for the WH operator, while extra values in D2 are then understood as being a source of surprise or amazement. If the relation between D1 and D2 is understood in this way, the existence of true values of cuteness in D2 will contradict the semantic content of the negative sentence.

In those instances where the relation between D1 and D2 does not give rise pragmatically to a sense of surprise or amazement, there will not be a contradiction. For example, polite compliments like *What a delicious dinner he made!* don't imply that the quality of the dinner is surprising, amazing, or anything of the sort (he might always cook very well). They just emphasize that the degree to which the dinner was delicious falls outside of the usual range that we encounter in dinners generally. Because of this, (45) seems fine, especially if the negation is stressed:

²⁵The only way the assertion and presupposition of (38) could fail to be contradictory would be the odd situation in which the speaker believes Tony is 6'5" (which he is) but lacks the right kind of justification for this belief to be knowledge (and knows his or her justification to be inadequate). But if one is remarking on one's lack of adequate justification for *p*, it's odd to simultaneously presuppose that one believes *p*. We think this is the source of the ungrammaticality of the sentence even in this kind of context. The sentence which is naturally used to report this type of situation, *I don't KNOW that Tony's 6'5"*, differs in that it doesn't presuppose the speaker's belief that Tony is 6'5", but rather just implicates it.

(45) It isn't amazing what a delicious dinner she made.

4.3.3 Question/Answer Relations

Finally we return to the facts showing that exclamatives may not be answered and typically may not be used as an answer. The first point follows from the simple fact that the function of exclamatives is not to introduce a set of alternatives into the discourse in the way questions do. Rather, we have proposed that their function is widening the domain. The specifics of our account of widening don't play a role here; the point is simply that the force of exclamatives does not affect the discourse in a way which opens the door for answering.

Exclamatives typically cannot be used as an answer because they are factive (though we noted a possible exception in note 14). In general, a sentence being used as an answer may not presuppose the information which provides the answer, as pointed out by Grimshaw (1979). Thus, (46) is unacceptable because *It's odd that...* is factive (Grimshaw's example (154), p. 321):

(46) A: Did Bill leave? B: *It's odd that he did.

Since exclamatives are factive, we expect them to be impossible as answers.

4.4 Conclusion

In this section, we have identified two semantic properties which characterize exclamatives: they are factive and they trigger the operation of widening. These semantic components together can explain all of the data which motivated our criteria, and could capture various informal ways of describing the contribution of exclamatives.

5 The Structure of Exclamatives

We now turn to the 'form' side of the form/meaning pairing which is the basis of the concept of clause type. As we discussed in the introduction, we argue that exclamatives are characterized by two syntactic properties: they contain a WH operator and an abstract factive morpheme. A clause containing these elements will denote a set of alternative propositions, and will be factive. As discussed Section 4, a clause of this sort will receive the sentential force of widening, thus explaining why these syntactic properties are connected to a clause's exclamative status.

The presence of a WH operator which causes the clause to denote a set of propositions is clear.²⁶ In this section, we concentrate on motivating the claim that all exclamative clauses contain a factive morpheme. Moreover, we argue that factivity is represented in the CP domain, more specifically in a layer of CP structure not present in interrogatives.

Our approach to analyzing the formal properties of the class of exclamatives is similar in certain respects to that of Michaelis & Lambrecht (1996b). Working within a construction grammar framework, they propose that the construction of exclamatives is defined as realizing all five semantic/pragmatic properties listed in (30). Individual properties may be realized in different ways in different sentences, and this aims to explain the syntactic diversity of the construction. Apart from differences which arise due to the types of tools which the two frameworks have at hand, our proposal contrasts with theirs some significant ways. Our proposal distinguishes two levels of meaning: the denotation and the sentential force. The crucial denotational aspects of exclamative meaning (alternative propositions and factivity) must be realized in the syntax, and

²⁶Based on data from Dutch, Corver (1990, Ch. 5) argues that the WH operator *wat* ('what') in CP can function to mark a clause as exclamative.

are computed in a compositional way. This combination of elements leads to a meaning which is associated with a certain sentential force, that which we have analyzed as widening. There is no requirement that the force itself be syntactically represented. In contrast, their approach identifies five meaning-properties, none of which appears to be a force in our sense, and proposes that these are syntactically represented. These representations are not developed within a detailed and formally precise compositional framework, though perhaps they could be. There is no specific explanation for how force is derived.

5.1 Multiple Layers of CP Structure: Some Initial Evidence from Paduan

Paduan provides direct evidence that exclamative clauses contain an extra CP layer of structure. We identify three ways in which WH exclamatives and questions in Paduan differ syntactically,²⁷ and then show how these differences can be explained by proposing a second layer of CP for exclamatives. In Section 5.2 we provide arguments that exclamatives in other languages, in particular Italian and English, have a similar structure.

The first contrast between exclamatives and interrogatives in Paduan is in the linear order of the WH phrase with respect to left-dislocated constituents (cf. Benincà 1996). WH constituents in questions can follow, but cannot precede, left-dislocated elements:

- (47) a. A to sorela, che libro vorissi-to regalar-ghe? (Paduan)
to your sister, which book want-s.cl give-her
‘To your sister, which book would you like to give as a gift?’
b. *Che libro, a to sorela, vorissi-to regalar-ghe?
- (48) a. To sorela, a chi la ga-li presentà?
your sister, to who her have-s.cl introduced
‘Your sister, to whom have they introduced her?’
b. *A chi, to sorela, ghe la ga-li presentà?

In contrast, complex WH constituents in exclamatives may precede the left-dislocated element:²⁸

- (49) a. Che bel libro, a to sorela, che i ghe ga regalà!
what nice book, to your sister, that s.cl her have given
‘What a nice book, to your sister, they gave her as a gift!’
b. In che bel posto, to fjolo, che te lo ga mandà!
in what nice place, your son, that s.cl him have sent
‘In what a nice place, your son, you sent him!’

We can summarize Benincà’s (1996:41) conclusions about the possible relative orders among left dislocated elements and WH constituents as follows:

- (50) Left dislocation - WH exclamative - Left dislocation - WH interrogative

The pattern of behavior of WH phrases in exclamatives is in this way similar to that of WH phrases in relative clauses, discussed by Rizzi (1997).

The second way in which questions and exclamatives in Paduan differ is with respect to the nature of the element in the C position. The WH constituent in an exclamative co-occurs with either the complementizer *che* or the complex head [*V no V*] (plus associated clitics) in C:

²⁷The precise characterization of all of the subtypes of exclamative clauses in Paduan is quite complex. See Zanuttini & Portner (2000) for a detailed description.

²⁸Simple ones may not, nor may WH phrases headed by adjectives or adverbs. We discuss these facts in detail in section 6.1.

- (51) a. Cossa *che* l magnava!
 what that s.cl ate
 ‘What things he ate!’
 b. Che libro *che* te lezi!
 what book that s.cl read
 ‘What a book you are reading!’
- (52) a. Cossa [*no ghe dise-lo!*]
 what neg him says-s.cl
 ‘What things he’s telling him!’
 b. Che libro [*no lezi-to!*]
 what book neg read-s.cl
 ‘What a book you are reading!’

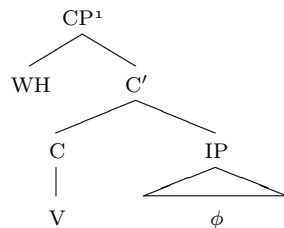
In contrast, co-occurrence of the WH phrase and the complementizer *che* or *no+V* is never possible in matrix questions:

- (53) a. *Cossa *che* l magnava?
 what that s.cl ate
 ‘What did he eat?’
 b. *Cossa *no ga-la* magnà?
 what neg has-s.cl eaten
 ‘What didn’t she eat?’

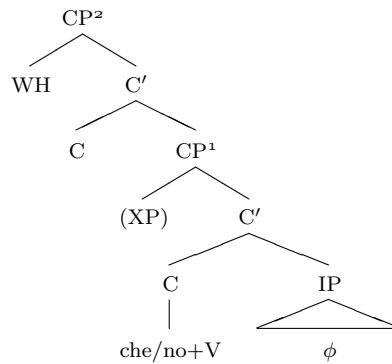
A final difference between Paduan WH questions and exclamatives concerns the obligatoriness of movement: overt movement is obligatory in exclamatives but not in questions (Benincà 1996, Gérard 1980, Obenauer 1994, Radford 1982).

We take the similarities we have examined to suggest that questions and exclamatives both involve movement of the WH constituent to a CP position. At the same time, we take the observed differences to suggest that the requirements that must be satisfied in the two cases are not identical. In particular, we hypothesize that exclamatives involve movement to a position which is structurally higher than the one involved in questions (Benincà 1995, 1996, 2001, Munaro 1998, Munaro & Obenauer to appear):)

- (54) Questions:



(55) Exclamatives:



Given these structural analyses of the two clause types, the properties differentiating exclamatives from interrogatives are derived as follows:

- The WH phrase occurs in the higher CP in the syntax, leaving room for another phrase in the spec of the lower CP.
- The lower C⁰ is always filled, either by *che* or by *no* plus the verb; the fact that the WH phrase is in the higher projection allows for the presence of *che* without a doubly-filled-COMP filter violation.²⁹
- The higher specifier of CP position must be filled, giving rise to the obligatoriness of movement in exclamatives.

We speculate that yes/no exclamatives also use both layers of CP structure, though we don't have the same kind of direct evidence available with WH exclamatives. In (56) and (57)a, the obligatory *boy* or *ecome* can be seen as residing in the higher CP. However, the negative inversion (57)b would have to be seen as containing an abstract operator in this position.

- (56) *(Boy) if syntax isn't fun!
 (57) a. *(Ecome) se l ga pianto! (Paduan)
 and how if s.cl has cried
 'And how she cried so!'
 b. No ga-lo magnà tuto!
 neg has-s.cl eaten everything
 'He's eaten everything!'

We leave a more detailed analysis of yes/no exclamatives to future work.

Besides the empirical arguments concerning Paduan given above, there is another, more theoretical point which supports the idea that exclamatives may involve an extra layer of CP structure. This arises from the factivity of exclamatives. It has been argued by Watanabe (1993) that factive complement clauses involve CP-recursion. Assuming that this is correct, it is plausible to suggest that the factivity of exclamatives is syntactically encoded by the presence of the extra CP layer (i.e. CP² in (55) is the R_{factivity} of section 4.1). We discuss the connection to factivity in more detail in section 5.2.

Stepping back for a moment, we'd like to point out for future research the number of connections among the categories of NP, factive complement clause, and exclamative. To begin with, some exclamatives in English have the structure of noun phrases:

²⁹Embedded WH questions may contain *che*. Thus whatever principle rules out a doubly-filled-COMP in root interrogatives is not operative in embedded contexts.

- (58) a. The things he eats!
 b. The things he does to impress his friends!

In addition, others resemble free relatives, as seen in (59):

- (59) a. What things he eats! (cf. What things he eats I eat too.)
 b. What he does to impress his friends! (cf. What he does to impress his friends bothers me.)

Admittedly there are differences between the ordinary free relative construction and the subtype of exclamatives in (59); for instance, a free relative allows *who* as its WH word (*I like who he likes*), but an exclamative doesn't (**Who he likes!*). Nevertheless, the overall affinity between exclamatives and NPs in English supports treating the cases in (59) as free relatives in terms of their structure. Rizzi (1997) argues that Italian relatives involve WH movement to a higher projection than interrogatives. Given that the exclamatives in (59) have the structure of free relatives, this supports our contention that exclamatives in general involve multiple layers of structure in the CP-domain. This way of looking at things suggests a link to the analysis of factives more broadly. Factive complement clauses have been argued to involve structure above the basic CP level, and this structure has been identified both as a CP (Watanabe 1993) and as an NP (Kiparsky & Kiparsky 1970). Furthermore, Koster (1994) mentions that clausal complements of factives in Dutch behave like NPs in that they are obligatorily in pre-verbal position. The overall picture that emerges here is that factives in general, and exclamatives in particular, contain a CP plus another maximal projection above. This higher projection has been analyzed as an NP or a CP. In the long run we'd like to investigate whether it may indeed be of either category, or whether it has a uniform analysis with the surface properties of one or the other emerging in different languages or contexts.

5.2 The syntax of factivity

In the previous section we discussed evidence that exclamatives contain a more articulated CP structure than interrogatives. We now provide arguments that this extra structure is connected to one of the two semantic properties that characterize exclamatives, namely factivity. In doing so, we build on the work of Watanabe (1993), who argues that factive complement clauses involve CP-recursion. He proposes the following structure for embedded factive declaratives, where FACT represents a 'factive operator':

- (60) a. John regrets that he fired Mary. (Watanabe 1993: 527)
 b. ... [_{CP} [[_C that_i [_{CP} FACT [[_C t_i IP]]]]]]

He presents both empirical and theoretical motivations for such structure. On the empirical side, he uses it to account for the well-known observation that adjunct extraction is more difficult from factive clauses than from non-factive ones; the factive operator occupies the specifier of (the lower) CP, thus blocking movement of the adjunct.³⁰ On the theoretical side, he adopts the proposal of Authier (1992) that a clause with any type of material in the specifier of its highest CP is typed as a WH-clause. In (60) *regret* selects a non-WH complement; hence, the top CP layer of its complement clause must have an empty specifier so as not to be typed as a WH clause. This motivates the presence of an additional CP layer above the one hosting FACT. The derivation indicated in (60)b involves creating this second CP by raising *that*. This is necessary to allow FACT to be selected by the higher predicate; the idea is that a configuration in which the two CPs share the same head allows *regret* to have a selection relation towards both of them.

Watanabe makes a similar proposal for embedded topicalization like (61):

- (61) a. John said that this book, Mary should have read. (Watanabe 1993: 524)
 b. ... [_{CP} [[_C that_i [_{CP} this book [[_C t_i IP]]]]]]

³⁰Watanabe also comments on the impossibility of complementizer deletion in factive complements. However, his explanation of this property is presented as a speculative remark and requires additional assumptions not relevant here, so we do not discuss it further.

For us, the main relevance of his analysis of embedded topics is that they show overtly that the specifier of the lower CP is occupied. Since FACT and the topic compete for the same position, this predicts that embedded topicalization should be impossible in factive complements. This prediction is borne out in the following examples, as noted by Iatridou & Kroch (1992) and Watanabe (1993):

- (62) a. *John regrets that Mary he fired.
 b. *John regrets Mary that he fired. (Watanabe 1993: 528)

While (62)a is certainly better than Watanabe's (62)b, it is nevertheless unacceptable.

Watanabe's work was pursued in terms of a framework that assumed that there is a single category CP which undergoes recursion. Given recent theoretical work on the nature of the CP domain (Rizzi 1997, Benincà 2001, among others), the syntactic analysis of this type of data needs to be revisited. In particular, many scholars now take the CP domain to provide several positions for clause-initial elements, differentiated by their semantic/pragmatic function, and, if this is right, (62) can't simply be explained in terms of competition for a single specifier position. Moreover, on the empirical side it seems at best partially correct to say that factive complements are incompatible with a clause-initial topic. As pointed out to us by a reviewer, data like the following are acceptable:

- (63) Mark didn't understand the first part of your thesis. In fact, he regrets that *most of it* he was unable to understand.

Assuming that Iatridou & Kroch and Watanabe's basic intuition is correct, the question is whether a more sophisticated understanding of the structure of CP allows us to accommodate data like (63) as well.

Without undertaking the whole project of reinterpreting Iatridou & Kroch and Watanabe's idea in Rizzi-style terms, it does seem to us that the embedded topic in (63) has a special status. It is clearly focused and contrastive. The split-CP framework provides separate positions for contrastive topics (Rizzi's "focalized elements") and neutral topics, and perhaps only the latter are in complementary distribution with the factive operator. In any case, what we care about here is the question of whether there is evidence independent of exclamative constructions for the presence of a factive operator in the syntax. The work of Watanabe and Iatridou & Kroch can still be seen as providing such evidence as long as they have shown an incompatibility between factivity and some particular variety of topical element.

Returning to the analysis of exclamatives, we adopt the idea that factivity is represented by a factive operator in the CP domain and suggest a more precise representation for (64):

- (64) a. *Che alto che l ze!* (Paduan)
 what tall that s.cl is
 'How tall he is!
 b. [_{CP} *che alto* [[_C \emptyset] [_{CP} FACT [_C *che*] IP]]]

In this construction, two specifiers of CP are needed in order to host both the factive operator and the WH phrase.

A side issue that arises here is how WH-movement of *che alto* is able to move past the factive operator, given the island effects attributed to this operator by Watanabe. We suggest that FACT does not have the right feature content to count as an intervening potential attractee for WH movement to the higher CP; specifically, it has no WH feature. This way of looking at WH exclamatives still allows an explanation of why extraction is not possible from embedded factives like (60). Movement of a WH phrase to the specifier of the highest embedded CP in (60) would type the clause as WH, and this would be incompatible with the selectional requirements of *regret*. (In the complement of a non-factive, the Spec of CP will not be filled by FACT; once the WH phrase lands there, the complementizer can raise to prevent the clause from being typed as WH.) Direct movement from the embedded IP to the main clause's specifier of CP is ruled out by whatever forces successive cyclic movement.

We may now see how the structure proposed in (64)b types the clause as an exclamative. In root contexts, the mere presence of the factive operator suffices, as no other clause type is compatible with factivity when unembedded. As mentioned earlier, this is so because it does not make sense to assert, order, or ask about a proposition which is presupposed to be true. In embedded contexts, the structure is rather similar to embedded factive declaratives like (60), but the combination of the WH element and the factive operator distinguishes exclamatives from all other types. On the one hand, while embedded interrogatives would contain a WH feature, they are not compatible with factivity; on the other, embedded declaratives could have the factive operator, but are incompatible with the WH constituent.

We can now turn to how these ideas may be applied to a more precise analysis of nominal exclamatives as in English:³¹

- (65) a. The things he says!
 b. [_{DP} [[_D the] [_{NP} things [_{CP} WH [[_C \emptyset] [_{CP} FACT [[_C \emptyset] [_{IP} he says]]]]]]]]]]]

The key novel feature here is the presence of multiple layers of CP within the relative clause. In theoretical terms this is again motivated by the need to represent both WH and factivity. It receives empirical motivation from Rizzi's (1997) study of the structure of the CP domain. He argues that the CP projection occupied by relative pronouns is structurally the highest in the clause. This leaves the lower projections of the CP-domain open to host other material. For example, drawing on Italian data he provides cases of embedded clitic left-dislocation within a relative clause. The relative pronoun must precede the left-dislocated element *il premio Nobel*, contrasting with interrogatives where it must follow:

- (66) a. Un uomo *a cui*, il premio Nobel, lo daranno senz'altro. (Italian, Rizzi 1997)
 a man to whom the prize Nobel it will-give without-other
 'A man to whom they'll undoubtedly give the Nobel Prize'
 b. Il premio Nobel, *a chi* lo daranno?
 the prize Nobel to who it will-give
 'The Nobel Prize, who will they give it to?'

If Rizzi is correct, it is plausible to claim that the relative pronoun in (65) is quite high in the clause, and not in competition with the factive operator for a single structural position. Drawing this together with what we've said about (64), we propose that all exclamatives contain a factive operator in the specifier of a particular CP projection. This factive operator is incompatible with a certain type of topic, but is compatible with certain WH operators and contrastive topics.

To summarize, we have claimed that the syntax of exclamatives is determined by the need to encode the two semantic components which characterize this clause type. They must provide a set of alternative propositions, required by widening, and they must represent factivity. The set of alternative propositions is provided through the presence of a WH operator-variable structure, just as with interrogatives. Factivity is represented by an operator within the CP domain. A phrase is classified as an exclamative at the interface if it has these two syntactic properties.

6 The Syntax of the WH Phrase in Exclamatives

The account we have given so far of the way in which clauses are typed as exclamative is quite simple: they must have a factive operator and a WH phrase. These two elements correspond to the two semantic components which distinguish exclamatives from other clause types. However, as mentioned in the Introduction, exclamative clauses exhibit significant diversity in their structure. This raises the question of whether our simple proposal is too simplistic. We argue that it is not. Focusing on WH exclamatives, we see that, amidst

³¹One question that arises at this point is how an nominal structure like (65) could have the clause-like interpretation of a proposition associated with a sentential force. We refer readers who may be interested to Portner & Zanuttini (forthcoming).

all of their diversity, what consistently distinguishes them from other clause types is the presence of the WH phrase and factive operator.

We think that the key to understanding the diversity of exclamative clauses is a detailed understanding of the WH phrases they contain. Not all WH phrases are alike. Some only occur in exclamatives, while others may occur in both exclamatives and interrogatives. A close examination of the internal makeup of the former group reveals that they contain a morpheme not present in the latter. This morpheme has a special relation to the factive operator. As a consequence, this class of WH phrases occupies a position very high in the CP field. WH phrases which may occur in both exclamatives and interrogatives, in contrast, occupy a lower position. This difference in position leads to a number of other structural consequences. In Italian, for example, the WH phrases which only occur in exclamatives differ from the others in that they require the presence of the complementizer *che* and can be followed by a left-dislocated element.

Our appeal to a number of positions for WH phrases is in accord with a number of other proposals in the literature (e.g., Rizzi 1997 and Benincà 2001). Our study allows us to make a contribution to this approach by pointing out the relevance of some novel data. In addition, because exclamatives are factive, we are able to tie proposals concerning the syntactic representation of factivity to this literature on the positioning of WH phrases. We attempt to present our findings in a way which is neutral on various issues of detail concerning the structure of the ‘left periphery’, since the considerations which we bring up add to, rather than modify, the set of arguments that have been put forth.

6.1 Italian and Paduan

6.1.1 Two classes of WH phrases in Italian

As mentioned above, we may distinguish two groups of WH phrases. One only occurs in exclamatives, while the other may occur in both exclamatives and interrogatives.

1. Some WH phrases that occur in exclamatives do not occur in interrogatives:

- (67) a. *Che tanti libri che ha comprato!*
 which many books that has bought
 ‘How very many books s/he bought!’
 b. **Che tanti libri ha comprato?*
 which many books has bought

- (68) a. *Che alto che è!*
 which tall that is
 ‘How very tall he is!’
 b. **Che alto è?*
 which tall is

The WH phrases in (67)–(68) have a number of other properties which also need to be explained. First, they must cooccur with the complementizer *che*.³²

- (69) a. **Che tanti libri ha comprato!*
 which many books has bought
 b. **Che alto è!*
 which tall that is

And second, as mentioned above, they allow a left-dislocated constituent to their right:

³²Radford (1997: 101) only reports *che*+ADV as requiring the complementizer, saying that *che*+ADJ/PP merely prefers its presence. He doesn’t consider *che tanti*+N. The data in this paper are based on the judgments of the first author. We find the examples with adjectives and adverbs to pattern the same as one another. As Radford notes, however, there appears to be significant variation, perhaps regionally based.

- (70) a. Che tanti libri, a tua sorella, che le hanno regalato!
 which many books to your sister that her have given
 ‘How very many books they gave to your sister!’
 b. Che bel posto, a Giorgio, che (gli) hanno assegnato! (Benincà to appear)
 which nice place, to Giorgio, that him have assigned
 ‘What a good place they assigned to Giorgio!’

2. All WH phrases that occur in interrogatives also occur in exclamatives. For example:³³

- (71) a. Chi inviterebbe per sembrare importante!
 who would-invite for to-seem important
 ‘The people he would invite to seem important!’
 b. Chi inviterebbe per sembrare importante?
 (72) a. Cosa farebbe per i suoi figli!
 what would-do for the his children
 ‘The things he would do for his children!’
 b. Cosa farebbe per i suoi figli?
 (73) a. Quanto è alto!
 how much is tall
 ‘How tall he is!’
 b. Quanto è alto?
 (74) a. Quanti/quali libri ha comprato!
 how many/which books has bought
 ‘How very many/what books s/he bought!’
 b. Quanti libri ha comprato?

In contrast to those WH phrases that only occur in exclamatives, these do not allow the complementizer:

- (75) a. *Chi che inviterebbe per sembrare importante!
 who that would-invite for to-seem important
 b. *Cosa che farebbe per i suoi figli!
 what that would-do for the his children
 c. *Quanto che è alto!
 how much that is tall
 d. ??Quanti/quali libri che ha comprato!
 how many/which books that has bought
 ‘How (very) many books s/he bought!’

The judgement concerning (75)d is less than clear. It seems better than *chi* and *cosa*, but worse than *che alto* and *che tanti libri* in (69).

These WH phrases also disallow a left-dislocated constituent to their right, for example:³⁴

³³Root exclamatives with *chi* and *cosa* are most productive with a verb in the conditional, and for some speakers with negation, though Rigamonti (1981:78) reports *Che cosa/Cosa/Che mi tocca fare!* (‘The things I have to do!’) and *Chi mi tocca incontrare!* (‘The people I have to meet!’). In this paper we do not focus on these factors. We discuss the role of the negative marker in Portner & Zanuttini (1996, 2000).

The WH words *dove* (‘where’), *come* (‘how’), and *quando* (‘when’) behave like *chi* (‘who’) and *cosa* (‘what’). *Perché* (‘why’) fails to occur in an exclamative (**Perché l’ha fatto!*, which is acceptable as a rhetorical question).

³⁴There is one WH word which we have not included in our discussion. *Come* (‘how’) essentially falls into our second group, but it raises some additional issues which lead us to avoid building on it in what follows. Like WH phrases in our second group, it may occur in both exclamatives and interrogatives and disallows *che* and left dislocation to its right, as seen in (i):

- (ia) Come (*che) è stata brava! (cf. Radford 1997: 102)
 how (that) is been good
 ‘How good she was!’

- (76) a. *Cosa, a tua sorella, (che) le hanno regalato!
 what to your sister that her have given

3. Finally, WH phrases formed with *che*+N are an intermediate case. Like the elements in (71)–(74), they may occur in both exclamatives and interrogatives, but unlike them they allow the complementizer. A left-dislocated element is also possible:

- (77) a. Che libri (che) ha comprato!
 which books that has bought
 ‘What books s/he bought!’
 b. Che libri, a tua sorella, (che) le hanno regalato!
 what books to your sister that her have given
 ‘What books they gave your sister!’

We’ll treat this type of WH phrases as ambiguous between the two classes of WH phrases. This explains their range of properties and receives further support below.

We refer to the WH phrases that only occur in exclamatives as ‘E-only’ WH phrases (cf. (67)–(68)). In what follows, we discuss the question of why E-only WH phrases, but not the others in (71)–(74), have the two syntactic properties mentioned above: cooccurrence with the complementizer and with a left-dislocated element to their right.

Before we move on, it is important to make clear the connection between the presence of an E-only WH phrase and the status of a clause as an exclamative. While the presence of an E-only phrase forces the clause to be exclamative, exclamatives can also be formed with other WH phrases (cf. (71)–(74)). This also makes the point that exclamatives cannot be defined by the cooccurrence of complementizer *che* with a WH phrase. While all such cases are exclamative, there are other types of exclamative as well. A general account of this clause type must encompass all varieties.

6.1.2 The internal structure of WH phrases: some technical issues

Over the next two subsections we present an argument that E-only WH phrases contain an element, a morpheme glossed as ‘E-only’, which is not shared by those WH phrases that can occur in interrogatives. This element requires the presence of the factive operator, explaining why such WH phrases only occur in exclamatives. We show how their syntactic representation explains the facts noted in section 6.1.1: they must cooccur with the complementizer *che* and they allow a left-dislocated constituent to their right. In

-
- (ib) Come è stata? (Answer: *Brava*.)
 how is been
 ‘How was she?’
 (iia) Come (*che) canta bene!
 how (that) sings well
 ‘How she sings well!’
 (iib) Come canta? (Answer: *Bene*.)
 how sings
 ‘How does she sing?’

However, the exclamative and interrogative differ in that the exclamative may contain a modifier in the predicate, here *brava* or *bene* in (ii), which is not present in the corresponding interrogative. (The interrogatives may marginally contain this extra modifier, but this gives rise to an interpretation for *come* different from that in the exclamative: cf. *How does she sing well? Answer: By taking steroids.*) This raises an issue concerning the syntactic analysis of the exclamatives, in particular the relationship between *come* and the constituent it seems to modify. Radford (1997) concludes that the two do not form a unit at any level. However, this leaves unexplained the relationship with the corresponding interrogatives, where *come* might be thought to have moved from the position of *brava/bene*. Notice as well that (iia) is plausibly also treated as a yes/no exclamative, that is one used to exclaim about the proposition that she sings well (as opposed to not singing well), in addition to its reading as a WH exclamative. Furthermore, we note that French has two lexical items corresponding to *come*: *comme*, which is possible only in exclamatives, and *comment* (Gérard 1980). For these reasons, it is best to put *come* aside for the time being.

contrast, other WH phrases may or may not cooccur with the factive operator, and they receive a less highly-articulated syntactic structure which results in their incompatibility with a following complementizer and left-dislocated constituent.³⁵

The possibility or impossibility of having the E-only morpheme in a given WH phrase depends on the phrase's morphological makeup. Hence, our first step is a detailed investigation of the internal structure of the WH phrases. With regard to the issues we are concerned with here, the internal makeup of WH phrases in English is particularly transparent. Consider *how many books*, a case where three different components are explicitly and separately realized. The morpheme *how* indicates that we have WH quantification. *Many* provides a specification of the 'measure' by which the WH element quantifies, indicating that we are counting numbers of individuals.³⁶ *Books* provides the sortal, indicating that these individuals are books.

- (78) how many books
 WH MEASURE SORTAL
- (79) qu-anti libri (Italian)
 WH+MEASURE SORTAL

Notice that *many* in this case is playing a different semantic role from that in *He bought many books*, since it does not indicate a large number, but merely the fact that some number is being asked for. The Italian counterpart of *how many books* is *quanti libri*, where *quanti* contains morphemes whose meaning involves both WH quantification (*qu-*) and measure (*-ant-*), along with agreement (*-i*).

The E-only counterparts of *how many* and *quanti* are *how very many* and *che tanti*, respectively. The English form suggests that the obligatory exclamative nature of these phrases is marked by an additional element, lexicalized as *very* in English, which modifies the specification of measure.³⁷

- (80) how very many books
 WH E-ONLY MEASURE SORTAL

In Italian, we propose that the role of *very* in marking the E-only nature of the WH phrase is filled by *tanti* ('much/many'). More specifically, *tanti* should be viewed as a combination of *t-* and *-ant-*, where *-ant-* is the same morpheme occurring in *quanti* and indicates measure. The morpheme *t-* corresponds to *very* in (80):

- (81) che t-anti libri
 WH E-ONLY+MEASURE SORTAL

As we'll see, for morphological reasons the E-only marker only occurs in Italian when the WH element is *che*.

Recall that, when *che* is followed by an NP, it has two syntactic analyses, as an E-only WH phrase and as a non-E-only WH phrase. We propose that the E-only form contains a null morpheme, indicated by ϵ , which represents the fact that the phrase is E-only:

³⁵In this paper we won't examine the details of phrase structure within complex WH phrases, focusing instead simply on the linear order of elements. See Corver (1990, Ch. 5), Nelson (1997), Munaro (1998), Villalba (2001) for relevant discussion.

³⁶In fact, we are probably collapsing two concepts here: we are measuring an amount and computing this amount relative to the count domain of individuals. In a case like *how much milk*, we continue to measure amount, but we compute the amount relative to a measure appropriate to the mass domain, like liters.

³⁷Of course *very*, like the corresponding Italian element *tanti*, can occur in non-exclamative constructions where no E-only morpheme would play a role. It is only in the presence of *how* or *che*, respectively, that these elements indicate the exclamative nature of the phrase. It could be that *very* and *tanti* are ambiguous between E-only markers, which occur in these constructions, and ordinary modifiers. One point in favor of such an approach is the fact that not even nearly synonymous words can have the function of marking the phrase as E-only: *??how extremely tall*, **what some book* (cf. *what a book*), and **che molto alto* ('how very tall'). Alternatively, there may be a single form of each, one whose potential to function as an E-only element is only triggered in the right syntactic context. Note that nothing can intervene between the WH word and these E-only markers: **how not very tall*, **what many an enjoyable evening*, **che così tanti libri* ('how so many books'). This shows that the syntax of these cases is somehow special.

- (82) *che* ϵ *libri* (... *che ha comprato!*)
 WH E-ONLY SORTAL that has bought

This case has a different interpretation from *che tanti libri*. Because the latter contains *-anti*, which indicates MEASURE, it exclaims over the number of individual books. In contrast, (82), which does not contain a MEASURE, has to do with some quality of the books. Thus, it means ‘what books’.

The non-E-only WH form of *che libri* has the following structure:

- (83) *che libri*
 WH SORTAL

(83) occurs in both exclamatives and interrogatives, making the point that the E-only morpheme is not required to make a clause exclamative. This phrase lacks a specification of MEASURE, and so does not quantify over quantity or amount. Rather, it simply quantifies over books. This is particularly clear in the interrogative use, where it simply means ‘which books’; in exclamatives, it means ‘what books’ like (82).

WH phrases containing *che* plus an adjective or adverb are similar but not identical to those containing nouns. They may or may not contain *tanto*, but in either case are E-only forms. They have a structure parallel to (82), as seen below:

- (84) *che tanto*/ $\epsilon + \emptyset$ *alto*
 WH E-ONLY+MEASURE SORTAL

As with (81), *tanto* represents both the E-only morpheme and measure. The element indicated with \emptyset is simply a null version of *-ant*, the measure component of *tanto/quanto*. \emptyset , like *-ant*, is a bound morpheme, and must be combined with ϵ to yield a null version of *tanto*. *Tanto* or this null counterpart must be present because WH phrases headed by an adjective or adverb must always contain a specification of measure. The reason for this is simply that these WH phrases, in contrast to those headed by a noun, always quantify over an amount or quantity (in the formal semantic literature on adjectives, these are often referred to as degrees). For instance, when we talk about height, we are always concerned with the degree of height; there is no meaning parallel to (83), something like ‘what tall (thing)’, lacking MEASURE.

Given that a specification of measure must be present, and that this cannot be separated from the E-only morpheme as part of *tanto*/ $\epsilon + \emptyset$, *che*+ADJ/ADV cannot receive an interrogative interpretation comparable to (83). Interrogative WH phrases headed by an adjective or adverb always contain *quanto*, which as mentioned above marks measure with *-ant*:

- (85) *qu-anto* *alto*
 WH+MEASURE SORTAL

The cases so far discussed contrast with the non-E-only WH phrases *chi*, *cosa*, and (less clearly) *quanto*+AP/ADVP/NP. We suggest that *chi* and *cosa* are not E-only WH phrases because they cannot incorporate the E-only morpheme. Specifically, none of the markers of E-only status (*tanto*, its null counterpart, or ϵ) can fit within the already morphologically complex word. For example, *chi* is essentially the combination of WH (*ch-*) and the sortal HUMAN. Because this combination is lexicalized, it is impossible to insert material between WH and the sortal. A similar explanation may be given for the forms introduced by *quanto*. *Quanto* lexicalizes both the WH and measure components of the WH phrase, and so it is impossible to introduce an E-only marker in the appropriate position.

6.1.3 The relation between the WH phrase and the layers of CP

Having analyzed in some detail the structure of WH phrases, we can now provide an account of the pattern outlined in section 6.1.1. There we observed that, in Italian, E-only WH phrases obligatorily co-occur with

	spec,CP ³	spec,CP ²	spec,CP ¹	C ⁰
Exclamative	E-only WH	FACT	(Left-dislocation)	<i>che</i>
Exclamative		non-E-only WH	FACT	V
Interrogative			non-E-only WH	V

Table 1: Distribution of elements in Italian WH constructions

the complementizer *che* and allow a left-dislocated constituent to their right. In non-E-only WH phrases, we find the same behavior as in interrogatives: the verb immediately follows the WH phrase (in C⁰, we assume) and no left-dislocated element may follow. In this section we connect the presence or absence of the E-only marker in the WH phrase to these properties. Moreover, with regard to non-E-only WH phrases, we differentiate in structural terms those cases in which they occur in interrogatives from those in which they occur in exclamatives.

Our approach to this contrast builds on the proposal, discussed earlier, that exclamative clauses contain more structure in the CP domain than interrogatives. Moreover, we must incorporate the factive operator present in exclamatives but not interrogatives. In Watanabe’s analysis, FACT was licensed by the higher predicate; this raises the question of what licenses it in exclamatives. Given that all exclamatives contain a WH operator, it is natural to suggest that this is the licenser.³⁸ Thus, we propose that FACT is always in a specifier position lower than the one where the WH phrase is located. This may be implemented either through a selection mechanism from the head whose specifier hosts the WH phrase or by postulating a feature on the factive operator which may be checked by the WH phrase. We may tie the presence of the factive operator to the need to place WH phrases in a higher position in exclamatives than in interrogatives. Since the factive operator occupies a specifier of CP, the WH phrase in exclamatives must be in a higher specifier position than in interrogatives.

Though all exclamatives contain more structure than interrogatives, we propose that, within the class of exclamatives, E-only WH phrases occupy a higher position than their non-E-only counterparts. Its being in a higher position makes room for a left-dislocated element in a lower specifier.

We may summarize these ideas with Table 1. Both of the exclamative structures contain the factive operator, regardless of the type of WH phrase, while interrogatives do not. Thus, the CP structure of exclamatives is always richer than that of interrogatives. Moreover, E-only WH phrases occupy a higher CP layer than non-E-only phrases, even when the latter occur in exclamatives; this makes room for a left-dislocated element in the former case alone.

The next issue is why the complementizer is present with E-only WH phrases, while the verb is in C with the others. The generalization that emerges is that C is filled by the verb when spec,CP¹ is occupied by an operator, whether FACT or WH. This amounts to extending to the factive operator the intuition that a WH operator must enter into a relation with the verb or a feature on inflection realized on the verb. If spec,CP¹ does not contain an operator, its head is occupied by the complementizer *che*. We see the complementizer in exclamatives as a way to fill the C⁰ position when verb movement has not been triggered by the presence of an operator.

One may wonder how proposals like that of Rizzi (1997), which propose specific, contentful projections like ForceP in the CP-domain, relate to the pattern illustrated in 1. It seems to us that Rizzi’s view is compatible with what we have found here, but the points we are making here do not require one to adopt his framework. If one were to consider that our CP³ is Rizzi’s ForceP, one would have to accept that when the projection contains a non-E-only wh-phrase, the force features it contains are never overtly realized. This would leave open the question of how it participates in the expression of force. Moreover, since Rizzi’s approach suggests that exclamatives and interrogatives are differentiated by the content of ForceP, it would not be predicted

³⁸This proposal may also allow an explanation for the fact, noted by Emonds (1985) and discussed in Obenauer (1994), that pied-piping is more restricted in exclamatives than in interrogatives (cf. **With how many languages she is familiar!* vs. *With how many languages is she familiar?*). If the WH phrase is too deeply embedded in the moved constituent, perhaps it cannot license the factive operator.

	spec,CP ³	spec,CP ²	spec,CP ¹	C ⁰
Exclamative	E-only WH	FACT	(Left-dislocation)	<i>che</i>
Exclamative		non-E-only WH	FACT	<i>che/no+V</i>
Interrogative			non-E-only WH	V

Table 2: Distribution of elements in Paduan WH constructions

that the two clause types should differ in other ways. In particular, those differences which we attribute to the FACT morpheme would not fall out from the theory in any obvious way. If one were to suggest that CP² or CP¹ is the ForceP, then the material in it would vary quite widely: FACT, a wh-phrase, or nothing in the case of CP², and a left-dislocated element, FACT, or a wh-phrase (with a variety of elements possible in the head position as well) in the case of CP¹. This variety of types of material would raise questions about the explanatory value of labelling the projection ‘ForceP’.

A side issue that arises at this point is why an analysis allowing verb movement is not possible with E-only WH phrases. Specifically, what would be wrong with having FACT in spec,CP¹, thereby triggering inversion? Assuming that the highest C³ requires the presence of CP², there are two cases to consider. The first is that a left-dislocated element is in the specifier of CP². This phrase would intervene between the WH phrase and factive operator, blocking the licensing of the latter. The second possibility is that nothing is in the specifier of CP²; but then both the specifier and the head would be empty, and this might be ruled out by a general principle that every phrase requires suitable ‘lexical support’.

Turning now to Paduan, it differs from Italian in that the complementizer *che* may occur with non-E-only WH phrases, in addition to E-only ones as in Italian. For example:

- (86) a. Chi che l ga fato inrabiare! (Paduan)
 who that s.cl has made to get angry
 ‘The people he made angry!’
 b. Cossa che l magna!
 what that s.cl ate
 ‘What things he ate!’

We analyze this as showing that only WH operators, and not FACT, trigger verb movement in Paduan; FACT in spec,CP¹ cooccurs with the complementizer, just as a left-dislocated element does. In addition, recall that Paduan allows an exclamative structure involving the clitic negation *no+verb* preceding the subject clitic, and with no complementizer (cf. (52) and the discussion in Portner & Zanuttini 1996, 2000)). This structure is only possible with non-E-only wh phrases. Otherwise matters are the same as in Italian. In particular, non-E-only wh phrases do not easily allow a left dislocated element to their right. For example:

- (87) ??Cossa, a to sorela, (che) i ghe ga regalà!
 what, to your sister, that s.cl her have given
 ‘What, to your sister, they gave her as a gift!’

The overall pattern with Paduan is summarized in Table 2.³⁹

³⁹We do not exclude the possibility that there are other functional projections in the CP domain. For instance, we pointed out in (50) that left dislocated elements may precede the wh phrase in both interrogatives and exclamatives. This is typically explained by postulating a CP projection higher than the one occupied by E-only WH (Benincà 2001, Poletto 2000), and our theory is certainly compatible with this approach.

6.2 English

English is like Italian and Paduan in that the set of WH phrases which can occur in exclamatives differs from that which can occur in interrogatives. This difference manifests itself in a rather different way, however. Some of the properties that distinguish E-only WH phrases in Italian don't play a role in English: an overt complementizer is never present, and left-dislocated elements may not follow the WH phrase. Instead, the two classes fundamentally differ in whether or not they occur in root clausal exclamatives at all. In this section, we examine the nature of WH phrases in English exclamatives.

6.2.1 Some properties of WH phrases in English

1. Some WH phrases that occur in exclamatives do not occur in interrogatives. We continue to label them 'E-only WH phrases':

- (88) a. What a nice guy he is! (cf. *What a nice guy is he?)
 b. How very tall she is! (cf. *How very tall is she?)

2. All WH phrases that occur in interrogatives may also occur in embedded clausal exclamatives:

- (89) a. It's amazing who/what/what book she saw.
 b. It's amazing why she did what she did.
 c. It's amazing how tall she is.
 d. It's amazing how quickly she reads.

However, not all WH phrases that occur in interrogatives also occur in root clausal exclamatives:^{40,41}

- (90) a. *Who/what/what book she saw! (cf. Who/what/what book did she see?)
 b. *Why she did what she did!
 (91) a. How tall she is! (cf. How tall is she?)
 b. What books he reads! (cf. What books does he read?)

We argue that, as with the corresponding cases in Italian, the WH phrases in (91) are ambiguous between E-only and non-E-only forms.

3. There is another strategy for forming root exclamatives in English. These have the structure of a noun phrase with a relative clause:⁴²

- (92) a. The people who/that/∅ she would invite!
 b. The things which/that/∅ he would do for his children!
 c. The book which/that/∅ I saw!

⁴⁰Elliott (1974) and Grimshaw (1977, 1979) point out the inability of simple WH words like *who* and *what* to occur in root clausal exclamatives. However, they point out that these WH words may occur in embedded exclamatives, as seen above. According to them, the fact that *amazing* does not embed a clause introduced by *whether* shows that it cannot take an interrogative complement. Hence, *amazing* has an exclamative complement in (89)a.

Lahiri (2000) disputes Elliott's and Grimshaw's conclusion. He takes the ungrammaticality (90)a to show that *who* cannot introduce an exclamative clause, and thus concludes that the complement in (89)a is interrogative rather than exclamative. As is shown in this section, we maintain the idea that (89)a embeds an exclamative. Lahiri also points out that *amazing* can take a multiple-WH complement, as in *It is amazing which men love which women* (Lahiri 1991: 26). He takes this as evidence that *amazing* can embed an interrogative, presumably because of the contrast with **What a nice man loves what a nice woman!* From our perspective, what this shows is that E-only WH phrases cannot occur in multiple-WH structures, and while this is an interesting observation, it does not show that complements containing multiple WH phrases cannot be exclamative.

⁴¹As pointed out to us by Brian Joseph, there are certain occurrences of *why* in root exclamatives: *Why I never heard of such a thing!* This exclamative use of *why* cannot be embedded (*#It's amazing why I never heard of such a thing* does not have the same meaning as its unembedded counterpart). Note that the root case allows a pause after the *why*, distinguishing it from other wh operators in root exclamatives. We thus conclude that this use of *why* is special, and not to be explained as part of the basic pattern illustrated in the text.

⁴²These structures are mentioned by Elliott (1974: 243); Michaelis & Lambrecht (1996b) also include them within their class of exclamatives.

These, in a sense, cover the territory of the cases which can't be expressed using a root clausal exclamative; for example, (92)a means what **Who she would invite!* would mean, if it were grammatical. However, the distinction between E-only and non-E-only WH phrases is irrelevant here, since the WH words in nominal exclamatives are simply those otherwise available in relative clauses.

The pattern which needs to be explained is why certain WH phrases, the E-only ones, are able to occur in root clausal exclamatives, while others are not. As we did for Italian and Paduan, we first examine the internal structure of the WH phrases, and then turn to their distribution.

6.2.2 E-only and non-E-only WH phrases

The clear cases of E-only WH phrases in English are *how very many*+NP, *how very*+AP/ADVP and *what a*+NP. Each case contains an element not present in the corresponding interrogative WH phrases, namely *very* and *a*; we propose that these represent the E-only nature of the phrase:

- (93) a. *how very many books*
 WH E-ONLY MEASURE SORTAL
 b. *how very much water*
 WH E-only MEASURE SORTAL
 c. *how very \emptyset tall*
 WH E-ONLY MEASURE SORTAL

The most straightforward cases are (93)a–(93)b, where each component of the phrase is overtly and separately expressed. In (93)c, we propose that measure is encoded by a null counterpart of *much*, parallel to the role of *much* in (93)b and *tanto/ε + \emptyset* in (84). As mentioned in the discussion of Italian, the existence of an abstract element indicating measure is supported by the semantics of adjectives. Contemporary theories of the semantics of adjectives, in particular as they have developed in connection with the analysis of comparatives, claim that adjectives always contain a specification of degree, so that *She is tall* is analyzed as ‘she is *d*-much tall’. Empirical support comes from the fact that an overt instance of *much* may have a meaning involving a notion of degree in comparative exclamatives, as well as interrogatives:

- (94) a. How very much taller (than him) she is!
 b. How much taller (than him) is she?

In these cases, *much* indicates that the degree-difference between the heights of the two individuals is great.

Like the Italian *che libri* (‘what books’) in (82), English *what a* +NP exclaims over some quality of individuals and not their number. It therefore lacks a specification of measure.

- (95) what a guy
 WH E-ONLY SORTAL

It's natural to suppose that *a* represents the phrase's E-only nature, since it is the extra element not present in interrogatives.

Because they can occur in both interrogatives and root clausal exclamatives, we propose that *what*+N_{pl} and *how*+A are ambiguous between non-E-only and E-only analyses. As for *what*+N_{pl}, it has two structures which, though identical in appearance, differ in terms of whether the determiner is present. The reason for this can be seen from a comparison with the corresponding singular forms. Recall that *what a*+N_{sg} is E-only, while *what*+N_{sg} is not E-only. Given that the determiner for plural indefinite NPs in English is null, we may view the E-only form of *what books* as containing this empty determiner, the counterpart of *a* in (95). Thus, the exclamative form of *what books* is (96)a. In contrast, the interrogative version is simply (96)b, parallel to *what book*.

	spec,CP ²	spec,CP ¹	C ⁰
Exclamative	E-only WH	FACT	∅
Exclamative	non-E-only WH	FACT	∅
Interrogative		non-E-only WH	V

Table 3: Distribution of elements in English embedded WH constructions

- (96) a. what \emptyset_{det} books
 WH E-ONLY SORTAL
 b. what books
 WH SORTAL

Turning now to *how*+A, the E-only analysis (97)a parallels Italian *che alto* (cf. (84)). The non-E-only analysis in (97)b is the counterpart of *how very tall* lacking the E-only marker *very* (cf. (93)c).⁴³

- (97) a. how \emptyset tall
 WH E-ONLY+MEASURE SORTAL
 b. how \emptyset tall
 WH MEASURE SORTAL

6.2.3 Nominal and clausal exclamatives

Having examined the internal makeup of WH phrases in English, we can now turn to their distribution in exclamatives and interrogatives. The embedded cases, where all WH phrases can occur in exclamatives, is more parallel to Italian than the root one, where non-E-only WH phrases are impossible. However, even in embedded contexts the languages differ in that in English a left-dislocated element may not follow the WH phrase:

- (98) *It's amazing what a nice book, to your sister, they gave (her) as a gift.

Thus, in English there is no evidence for a third level of CP structure like that postulated for Italian. We therefore place E-only and non-E-only WH phrases in the same position in embedded exclamatives, namely the specifier of CP². This is summarized in Table 3. This analysis of embedded exclamatives leaves open why non-E-only WH phrases do not occur in root exclamatives. There is no fundamental incompatibility between these WH phrases and an exclamative interpretation, given that they are possible in embedded contexts. We thus take this to be a somewhat superficial difference between English and Italian. Within the perspective presented here, it is natural to suggest that this difference concerns the licensing of the factive operator. Specifically, we would say that English E-only WH phrases may license FACT, while non-E-only ones may not. In root exclamatives, then, we must have an E-only WH phrase. In embedded clauses, in contrast, the higher predicate is able to license FACT, just as in Watanabe's proposal for embedded factive declaratives. For this reason, embedded exclamatives are allowed regardless of the type of WH operator present, while root cases require an E-only WH phrase.⁴⁴

⁴³Italian *che alto* differs from English *how tall* because there is no overt or covert morpheme in Italian which expresses measure alone. Measure is always expressed in combination either with E-only (*tanto*) or with WH (*quanto*). This appears to be connected to the fact that measure is expressed in Italian APs via the bound morpheme *-ant-*, whereas in English it's expressed via the null counterpart of *much* (i.e. *d-much*).

⁴⁴As observed in note 33, the data in Italian are in some respects similar to those in English. Root exclamatives with *chi* and *cosa* are less than perfect, unless they occur with a conditional verb form or negation. We don't treat their marginality in the same way as the English cases simply because we judge them to be grammatical, though difficult to interpret, in contrast to the English cases which are fully ungrammatical. Perhaps what is going on in Italian is that, because the word order is the same, it is difficult to distinguish root exclamatives introduced by *chi* or *cosa* from the corresponding interrogatives. Whenever we have a means of distinguishing the two, through the presence of an embedding predicate, negation, or non-indicative verb form, it becomes easier to observe the exclamative interpretation. In English, in contrast, the same kind of ambiguity does not

A remaining issue concerns the status of nominal exclamatives like those in (92). We have argued in Portner & Zanuttini (forthcoming) that they are not simply ordinary noun phrases used with the illocutionary force of exclaiming. In that paper, we argued that they also have the two syntactic components which mark an exclamative, namely the WH and factive operators. As for the WH operator, the relative pronoun can fulfill this role. The factive operator is in the extra [spec,CP] provided by an additional CP layer, as with clausal exclamatives.⁴⁵ Thus, despite the differences between nominal and clausal exclamatives, the two classes share the key syntactic components which make for an exclamative: a WH operator and a syntactic marker of factivity.

6.3 Remarks

In this section we have departed somewhat from the paper's main focus on the syntax/semantic interface, concentrating instead on the internal makeup of WH phrases. Our goal has been to relate the morphological properties of the WH phrase to certain syntactic properties of exclamatives and interrogatives. Not all WH phrases that occur in interrogatives also occur in exclamatives. In terms of our analysis, what differentiates an exclamative from an interrogative is the presence of a factive operator. Therefore, we see those WH phrases that only occur in exclamatives as requiring the presence of this factive operator.

While we have identified certain material, in particular *tanto*, *very*, and *a* (in *how very*+ADJ/ADV and *what a*+N), as marking a phrase as E-only, we have not considered why these elements in particular are used. Are they arbitrary choices? The interpretations of *tanto* and *very* have a clear similarity to one component of the meaning of exclamatives, namely widening. It therefore might be suggested that they have the semantic role of marking widening, in addition to whatever syntactic role they might have. It is more difficult to connect *a* to widening, though cf. footnote 17.

Another issue is the nature of the relationship between E-only WH phrases and the factive operator. It may be that it is purely syntactic, so that FACT licenses the E-only element (even as the latter may also license the former). Alternatively, if E-only WH phrases mark widening, there may be some semantic relationship. Thus far, we have seen widening and factivity as two cooccurring but independent components of meaning in exclamatives, but perhaps widening only makes sense if the clause is factive.⁴⁶ This remains to be further investigated.

7 Conclusion

In this paper we have investigated the characterization of exclamative clauses. We have argued that, despite their syntactic diversity, it is possible to give a uniform analysis which meets the definition of clause type as a pairing of form and function (Sadock & Zwicky 1985). We further have claimed that the syntactic representation of exclamatives realizes their two central semantic properties: that they are factive and that they denote a set of alternative propositions. Moreover, any clause which realizes these two components is associated with the sentential force of widening. In concrete terms, factivity is encoded through a factive operator of the sort discussed by e.g. Watanabe (1993), and the set of alternative propositions depends on the presence of a WH operator. This way of looking at things implies that the category of exclamatives can only be understood at the syntax/semantics interface, since the cooccurrence of these two operators in the clause is only motivated by the semantic and pragmatic components.

arise, since subject-verb inversion clearly marks a root clause as interrogative.

⁴⁵Another alternative is that the definite article *the* marks the clause as, in effect, factive. The definite article triggers an existence presupposition: in the case of *The people she would invite!*, that there are people she would invite. This is equivalent to the factive presupposition required by the exclamative, namely that she would invite some people. If this is right, the definite article would fulfill the role of marking the phrase as factive, and no other factive operator would be required.

⁴⁶Paduan has a clitic form of the negative marker *no* which contributes a meaning very similar to widening (cf. Portner & Zanuttini 1996, 2000). It occurs both in exclamatives and (rhetorical) interrogatives. If this semantic function, which we have previously characterized as a conventional implicature, is in fact identical to widening, we cannot say that widening is necessarily tied to factivity.

In addition, we have made a number of significant side contributions. First, we developed a number of descriptive criteria for identifying exclamative clauses (see also Portner & Zanuttini 2000, Zanuttini & Portner 2000). These make it possible to distinguish exclamative clauses from pragmatically similar declaratives and interrogatives. Given that exclamatives are often syntactically, as well as functionally, similar to interrogatives, it is especially important to be able to distinguish these two types. Our analysis allows us to understand the syntactic similarities and differences between these two types: they share the presence of a WH operator, reflecting their shared need to denote a set of alternative propositions, but differ in whether a representation of factivity is present. Second, we elaborated on the relationship between factivity and the syntactic structure in the CP-domain. Building on data and ideas from the literature, we propose that the extra structure present in exclamatives is needed to realize the factive operator in a way similar to what occurs with embedded declarative factives. And third, we investigated the internal structure of the WH phrases that occur in exclamatives and interrogatives. This allowed us to better understand how the different components of WH phrases relate to one another and to other elements in the clause, including the factive operator, complementizer, and higher predicate.

While for the most part we have focused on clausal structures similar to WH interrogatives, our discussion has extended to other varieties of exclamatives. On the one hand, we have discussed yes/no exclamatives of the kind in (99). On the other, we have briefly brought in English nominal exclamatives like (100).

- (99) No ga-lo magnà tuto! (Paduan)
 neg has-s.cl eaten everything
 ‘He ate everything!’
 (100) The things he eats!

Despite their superficially different appearance from “core” cases of exclamatives, we suggest that these represent the two components of exclamative meaning, and so fall within our uniform characterization.

Our study of exclamatives makes a contribution to the study of clause types in that it provides a rather different perspective on how clause types are marked. In much of the literature, one finds an identification of clause type with the syntactic expression of illocutionary force. Against this perspective, we have argued that illocutionary force is not the appropriate concept; sentential force is. More significantly, in the case of exclamatives there is no single element which is present in all and only exclamatives. Thus, there is nothing to play the role of force-indicator. Instead, the clause type is marked by the cooccurrence of markers of two defining semantic characteristics. This leaves open the question of whether sentential force is represented in the syntax at all. In some cases there is an element which could plausibly play the role of force indicator (e.g. *very* in English *how very tall*), but we do not have evidence that one is present throughout the range of cases. It is of course possible that force is syntactically represented, but the data we have are also compatible with the hypothesis that force is implemented in the semantic or pragmatic components, without needing any grammatical realization. More generally, our work shows that we must keep separate the questions of how force is indicated and how clause types are marked. Such a perspective might also be useful for the study of imperatives and interrogatives. For these types, an element in C has sometimes been cited as the force-indicator (e.g. Rivero 1994, Rivero & Terzi 1995, Han 1998). However, the reflex of this element, verb movement, is not uniformly present throughout the full range of cases. This casts doubt on the hypothesis that a force-indicating element is necessary because it functions as the marker of clause type. From the perspective of this paper, the relevant questions would not necessarily focus on force; rather, we would ask what semantic properties both uniquely identify each type and are represented in the syntax, thus creating the pairing of form and function which comprises a clause type. These properties might include force, but—as we see with the case of exclamatives—need not.

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