Exclamation, intensity, and the assertion of emotion

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Abstract

In this paper, we present a novel analysis of exclamative sentences as assertions equivalent to declarative sentences with emotive verbs. Focusing on *wh*-exclamatives and declarative exclamations, we offer a wide range of arguments for why they are both assertive including showing that they can be rejected and responded to (contrary to what previous literature has assumed). We further argue that like emotive verbs, exclamatives convey a presupposition *not* of factivity but of subjective veridicality anchored to the speaker, and assert the emotion (of surprise, amazement, or a negative emotion). Our analysis proposes a syntax-semantics for exclamatives without a speech act operator, and exclamativity surfaces as an *attitude* rather than a speech act. This seems to be well motivated by the Greek, German as well as English facts we examine in the paper—which illocutionary operator approaches cannot capture while also failing to determine precisely what the exclamative force might be.

Keywords. assertion; emotive predicate; exclamation; exclamative; German; Greek

1. Introduction

There is a long-standing tradition in linguistic theory postulating that a speech act (Searle 1969) is created by prefixing a proposition with an illocutionary force operator. In more recent work at the syntax-semantics interface, the classic performative hypothesis (Ross 1970; Lewis 1970) has been revived by works that propose several speech act operators in the syntactic representation of a sentence (e.g., Haegeman 2014; Krifka 2015, 2019; Portner et al. 2019; Speas & Tenny 2003; Wiltschko 2021: Ch. 2; and many others). When we think, for example, of the contrast between assertions and questions, it is generally acknowledged that the two differ in 'illocutionary force' as well as syntactic structure and therefore clause type. Most formal analyses assume a logical language that reflects these differences, and a designated speech act operator such as 'ASSERT' and '?' (Krifka 2015) serves to reflect the distinct illocutionary forces. Merchant (2010) argues that a sentence is a tuple $<P,S,M,C_{SA}>$, where P is the phonological representation, S the syntactic, M the semantic representation, and C_{SA} is the 'speech act content'.

Assertion, question, and the imperative have been well described and are relatively indisputable speech acts characterized by a straightforward mapping between P, S, M, and C_{SA}. When we consider exclamatives the issues become: Are exclamatives distinct in semantic and syntactic type from assertions? Do exclamatives have distinct illocutionary force from assertions like questions or imperatives are argued to have?[1] If so, what is the illocutionary force of the

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[1] But even for these relatively straightforward cases the speech act analysis has been questioned; see Kaufmann (2012) for a modal analysis of imperatives, and Giannakidou & Mari (2021b) for a modal analysis of biased questions (such as *Didn't you go to the party?* and tag questions). Both express beliefs of the speaker about the content and are not mere requests for information. There seems to be an emerging trend in the literature to re-think the boundary between assertion and non-assertions, which appears to be more fluid than the speech act analyses make us expect.

exclamative? In order to answer these questions, one must bear in mind that, unlike questions or imperatives, so-called exclamatives such as *How fast he ran!* are often analyzed analogous to other clause types and even to non-clausal items that are claimed to express the same illocutionary force. Following most of the literature, we use the term 'exclamation' (and not 'exclamative') to refer to the illocutionary component that is assumed to be the common property of those constructions.[2] The clause types and items that are often compared to exclamatives such as *How fast he ran!* include, among others, exclamations with interjections such as *Wow!* and declaratives like *Boy, it is raining!* or *I am so disgusted by your behavior!* known as sentence exclamations or declarative exclamations. Here are more examples of exclamations that include metalinguistic comparatives (1a), questions (1b), and imperatives (1c):

(1) a. I'd rather die than marry him! (Giannakidou &Yoon 2011)
     b. John will come to the party?! (Really?)
     c. Open the door, damn it!

Given this variation, it seems implausible to say that exclamation (the illocutionary force assumed for exclamative) is a specific, distinct speech act, especially since it appears to combine with other speech acts. Rather, the common feature of all the examples above seems to be an emotive attitude to whatever the speech act is. Although we will not analyze all of those cases in the present paper and instead focus on *wh*-exclamatives (*How fast he ran!*) and declarative exclamations (*He was so fast!*), our novel idea will be that the wide range of exclamations can be better captured as an *attitude of emotion* rather than a-hard-to-define illocutionary force.

Yet prominent theories about exclamatives and exclamation indeed posit an illocutionary force operator: Rett's (2011) 'E-FORCE' and Grosz's (2012) EX operators instantiate it. Yet, unlike with questions—where, as we just said, the speech act operator returns a different semantic type (a question)—the stipulated E-FORCE and EX are claimed to return the original proposition ('the at-issue content') and a 'not-at-issue' proposition (in this case: surprise/amazement about p). These operators, therefore, should be compatible with an assertive analysis of exclamations, and one wonders what exactly is achieved by postulating a distinct speech act operator.

It is plausible, and indeed empirically desirable as we will show, to hypothesize a simpler analysis by not viewing exclamation as a speech act. Our paper spells out such a proposal by building on the analysis of emotive verbs proposed by Giannakidou & Mari 2021a, and takes a fresh look at *wh*-based exclamatives and declarative exclamations as a unified class of emotive assertions equivalent semantically to sentences with emotive predicates (*be surprised*, *happy*, *amazed*, *disgusted*, etc.). In some recent work, Zanuttini & Portner (2003) similarly argue that there is a set of semantic (and not syntactic) properties that uniquely identifies the 'exclamative', but this set does not include the property of force and hence an exclamation operator. In Zanuttini & Portner's (2003) analysis, however, the exclamative does have a distinct illocutionary force derived indirectly from the semantic properties that characterize the exclamative. We will argue that *wh*-exclamatives (and other forms like declarative exclamations) do not have illocutionary force distinct from assertions; they are indeed a specific kind of assertion, one that asserts emotion and presupposes intensity. From this particular nature of what we thus call 'emotive assertions' the syntactic and semantic properties of at least *wh*-exclamatives (*How fast he ran!*) and declarative exclamations (*He was so fast!*) will be shown to follow.

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[2] We thus use the terms 'exclamation' vs. 'exclamative' analogous to terms such as 'assertion' (which is the speech act) vs. declarative (which is the clause type); see, e.g., Rett (2011).

A crucial component of the theories positing a distinct illocutionary operator for *wh*-exclamatives is that they claim that these exclamatives lack assertive content. The only descriptive content allowed is a factivity presupposition (relying on earlier discussions in Grimshaw 1979; Zanuttini & Portner 2003; Abels 2010); and some argue that there is expressive content (which is also not asserted). Consider the following *wh*-exclamative and its contents at the descriptive and expressive level:

(2)   How fast Eliud Kipchoge was!
      <u>descriptive content/presupposition:</u> 'It is a fact that Eliud Kipchoge was very fast.'
      <u>expressive content/not-at-issue:</u>   'Speaker is amazed/surprised about Eliud Kipchoge being so fast.'

In our paper, we challenge the position that *wh*-exclamatives lack assertive content, and claim that the intended expressive content above is actually what the *wh*-exclamatives *assert*. We will argue, based on data from Greek and German, that *wh*-exclamatives are emotive assertions akin to assertions of sentences containing emotive predicates such as *be amazed*, *be surprised* (2'), and have very similar truth conditions and presuppositions:

(2') I am amazed at how extremely fast Eliud Kipchoge was.

Our claim is that (2) and (2') are identical in terms of what they assert and presuppose, and we will group them together under the label 'emotive assertions'. They both assert that the speaker has the emotion of amazement towards the believed proposition that 'Eliud Kipchoge was extremely fast', and presuppose that the speaker has the belief that Eliud Kipchoge was extremely fast. Our analysis relies on new data from Greek and German and shows that acknowledging the assertive content of *wh*-exclamatives, as well as the different nature of their presupposition is long overdue.

The paper is structured as follows. In Section 2, we address two central data points that have traditionally played a significant role in the discussion of whether *wh*-exclamatives, but also exclamatives more generally (e.g., inversion exclamatives *Does he run fast!*), feature assertive content. These data points concern two questions: (i) Can the descriptive content of exclamatives be rejected? and (ii) Can exclamatives be used as responses to information-seeking questions? Our answer to both questions will be 'yes', in contrast to previous claims. Section 3 then turns to the syntax-semantics interface in more detail and discusses Greek data illustrating a similarity between *wh*-exclamatives and complements of emotive predicates in that both appear with the Greek complementizer *pu*. After illustrating the relevant distributions, we will argue for an analysis that exclamative sentences are equivalents to declarative assertions containing an emotive verb and its complement with an extreme degree. We will rely on Giannakidou & Mari's (2021a) recent analysis of emotive verbs. In Section 4, we will focus on data from German that further support the parallel between emotive verbs and exclamative sentences as emotive assertions, taking into account exclamative forms that appear with the German complementizer *dass*. In particular, we will demonstrate that the only complementizer German uses in exclamatives is the complementizer that is the typical element in assertive contexts. Crucially, the assertive character of these exclamatives is not only signaled by its choice of the complementizer *dass*, but also by the distribution of exclamative modal particles, which shows that exclamatives share mood features with assertive declarative clauses. Section 5 summarizes and concludes the paper.

2. *Wh*-exclamatives and declarative exclamations have assertive content

Exclamatives are often considered semantic objects that are associated with a dedicated illocutionary operator, which instantiates the exclamation speech act. Prominent examples in semantics are Rett's (2011) 'E-FORCE' and Grosz's (2012) EX operators. In the syntactic literature, so-called 'cartographic' approaches, which represent illocutionary components as left-peripheral syntactic projections (Rizzi 1997, 2014), have postulated a separate functional projection for exclamatives (e.g., Munaro & Obenauer's 1999 'ExclCP').

Let us first illustrate this general idea by sketching very briefly the semantic approach by Grosz (2012); see also Gutiérrez-Rexach (1996, 2001) and Postma (1996) for seminal proposals of an intensional operator EXC(LAMATIVE) over propositions. We will then address two central data points that are often cited in favor of such exclamation-force approaches, which distinguish between declarative exclamations on the one hand and exclamatives on the other hand by claiming that they have different semantic and pragmatic properties (Section 2.2 and Section 2.3).

2.1 The exclamation operator

Regardless of the question of force, the distinctive feature of exclamations is that they convey intense emotion. Assertions, crucially, can also convey such emotion, and in this case we talk about *declarative exclamations* (see already our earlier remarks). The declarative exclamations are typically marked by interjections *Wow, that was an amazing meal! It is snowing in Barcelona!*, or a simple addition of *so*: *He runs so fast!* The literature typically dissociates *wh*-exclamatives from those declarative cases, but we will argue here that there is no good argument for doing so. If the two behave in a similar manner with respect to tests of content, and declarative exclamations are assertions, then *wh*-exclamatives must be assertions too.

In the context of optative and exclamative constructions, Grosz (2012) proposes, for exclamatives, an operator EX that combines with a truth-conditional expression of type $\langle s,t \rangle$ (i.e., a truth-conditional argument of propositional type; i.e., functions from indices 's' to truth-values, where 't' is the type of truth-values) and maps this proposition onto felicity conditions that detail the speaker's attitude towards the proposition. Crucially, the resulting denotation is not truth-conditional, but, according to Grosz, 'felicity-conditional'. In particular, he claims that application of EX to a proposition yields a one-dimensional meaning of type *E* (defined as the type of expressive meaning). Consider the following example and the representation in (3'); see Grosz (2012: 118):

(3) Boy, is it snowing!

(3')　　　　　　EX(snow) : E

snow : $\langle st \rangle$　　EX : $\langle st, E \rangle$
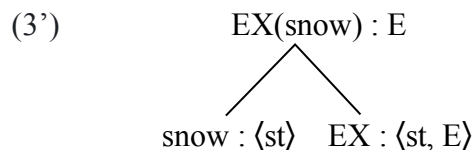
Grosz proposes that EX removes its propositional complement from the level of descriptive at-issue meaning, and shifts it to the level of expressive meaning. By contrast, Grosz continues, if

one utters a *declarative exclamation* like (4), one still expresses a truth-functional statement (i.e., that it was snowing in Barcelona):

(4) It's snowing in Barcelona! (It hasn't snowed for years!)

To us, and many native speakers, the declarative exclamation in (4) sounds every bit as 'expressive' as the exclamative in (3), it is therefore not clear empirically what distinguishes the two categories. The only difference (and the most crucial one for many approaches) is claimed to be that the expressivity in one case seems to be about the degree of snow (in [3]) whereas in (4) it seems to be about the fact that it is snowing. Other than that, declarative and 'exclamative' exclamations seem to be expressing an amazement attitude, and can be thought of as variants of the same kind of attitude.[3] Yet in the approach to exclamations sketched in (3) above, declarative exclamations are assigned a multidimensional meaning (with an expressive and a descriptive, truth-functional) component, whereas exclamatives are said to lack assertive meaning.

Following Potts (2005, 2007), we could say that the descriptive propositional part $\langle st \rangle$ combines with the expressive part $\langle st,E \rangle$ by means of the composition operator '•', which combines both meanings, passes the descriptive content up, and interprets it relative to the context modified by EX (see also Gutzmann 2015 on several applications of such a 'multidimensional' semantics). Formally, the composition operator '•' yields the following result (Potts 2007: 187):

(5) $[\![EX]\!]^C \bullet [\![snow]\!]^C = [\![snow]\!]^{[\![EX]\!] ([\![snow]\!])C}$

According to this multidimensional analysis, the operator EX passes the descriptive content of $[\![snow]\!]$ unchanged—that is, it is at-issue and it can be asserted or questioned. However, its context of interpretation is altered by the content of the operator. So, in contrast to the representation for exclamatives illustrated in (3), the result for declarative exclamations, according to Grosz's (2012) approach, is the following two-dimensional semantic object:

(6)   snow: $\langle st \rangle$
                      •
              EX(snow) : E

        snow : $\langle st \rangle$ EX : $\langle st, E \rangle$

But is there really empirical evidence that exclamatives, on the one hand, and declarative exclamations on the other hand differ? In the literature, we find two central data points that are cited in favor of distinguishing between the two: (i) the descriptive content of exclamatives cannot be denied, unlike the descriptive content of declarative exclamations which can be; and (ii)

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[3] In addition, exclamatives in many languages other than English can also express the non-degree meaning (e.g., emotion about the fact that it is raining, and not about the degree of rain); see Section 4 below and Trotzke & Villalba (2021) on Germanic and Romance *that*-exclamatives. That is, the observation that emotion is only about a degree in (3) cannot be considered a general feature that holds across languages and across all types of exclamatives. What seems to characterize exclamations as a whole (including both exclamatives and declarative exclamations) is the attitude of emotion (toward a fact, *It is snowing!* or a degree), and it seems unhelpful to place unjustified barriers between instantiations that are otherwise substantially similar.

exclamatives, in contrast to declarative exclamations, cannot be used as responses to information-seeking questions. Let us examine these data points in turn.

2.2 The descriptive content of all exclamations can be denied

Declarative exclamations and *wh*-exclamatives—the type of exclamative we will focus on in what follows—are both exclamations. Yet a standard assumption in the literature that assumes a difference between the two is that the former counts as an assertion and can thus be 'denied', whereas the *wh*-exclamative does not make a contribution to the discourse and can thus not be denied. The intended difference is reflected below (examples and judgments by Rett 2008, 2011):

(7) A: (Wow,) John bakes delicious desserts!
    B: No (he doesn't), these are store-bought. John's actually a terrible cook.

(8) A: (My,) What delicious desserts John bakes!
    B: ? No (he doesn't), these are store-bought. John's actually a terrible cook.
    B': Not really; these are store-bought. John's actually a terrible cook.

To begin with, *wh*-exclamatives, as can be seen, can indeed be 'weakly denied' by phrases like *not really* etc. ([8B']; see Rett 2008), and overall the reported difference in judgment regarding direct negation *No* needs to be updated. For one thing, the concept of denying is puzzling as a test of propositional content: External negations such as *No* are known to be anaphoric responses to the previous *utterance* (Horn 2001; Giannakidou 1997, 1998; Giannakidou & Stavrou 2009), and can be used to *reject* various aspects of the utterance including what is asserted (in which case we talk about denial proper) but also what is presupposed or implicated in which case the negation is metalinguistic. The so-called denial test is therefore more appropriately understood as a rejection test. In (7) and (8) what is rejected is the presupposition that John bakes delicious desserts.
  Secondly, as marked in (8B), the ill-formedness of *No* reported by Rett (2008, 2011) is rather weak. Other speakers we consulted find no trouble responding *No* to this sentence. In Greek, for example, both types of sentences can be routinely rejected by the negative particles *Oxi/Ba/A, ba*:

(9) A: Po po, o Janis ftiaxni nostima   glyka!
       wow   the John   makes   delicious sweets
       'Wow, John bakes delicious desserts!'
    B: Oxi/Ba/A, ba! Ta agorase apo to zaxaroplasteio.
       'No! These are store-bought.'
    B': Oxi/Ba/A ba. Dhen mou aresoun.
       'No! I don't like them.'

(10) A: Ti   nostima glyka *pu*   ftiaxni o   Janis!
        what delicious sweets that   bakes   the John
        'What delicious desserts John bakes!'
     B: Oxi/Ba/ A, ba! Ta agorase apo to zaxaroplasteio.
        'No! these are store-bought.'

B': Oxi/Ba/A ba. Dhen mou aresoun.
  'No! I don't like them.'

We discuss the form of Greek *wh*-exclamatives in more detail below. At this initial stage suffice it to note that: (i) the Greek *wh*-exclamative appears as a *what*- and not as a *how*-exclamative, unlike English, (ii) the *what*-exclamative contains the complementizer *pu* suggesting some sort of embedding (which we come back to), (iii) both types can be rejected with a number of negators that include the external particle *Oxi* 'No' but also the rejection particle (*a*) *ba*. These (more colloquial and quite common) rejection markers can also be used to reject regular declarative assertions (i.e., declaratives that do not express any surprise or amazement like in [9] above):

(11) A: O Janis ftiaxni nostima glyka.
       the John makes delicious sweets
       'John bakes delicious desserts.'
     B: Oxi/Ba/ A, ba! Ta agorazi.
       'No! He buys them.'
     B': Oxi/Ba/A ba. Dhen mou aresoun.
       'No! I don't like them.'

The rejection expressed by negating the previous assertion is indistinguishable from the rejection of an exclamative. Hence, when we look at Greek and understand the issue to be about rejection and not narrow denial (which is strictly speaking negating the proposition by *n't/dhen* which differ morphologically from *No/Oxi*), the idea that exclamatives cannot be rejected is simply a non-starter. Given the Greek data and the weakness of the original English contrast, declarative exclamations and *wh*-exclamatives surface as more similar than different.

Castroviejo Miró (2008) offers a similar discussion to ours. Consider her examples (27):

(27) a. A: How tall Bill is!
      b. B1: # That's not true, you are not emotional.
      c. B2:   Come on, he's not that tall.

Castroviejo Miró claims that "(27b) is impossible, because the speaker's emotional state cannot be denied, but a sentence like (27c) is acceptable and felicitous in this dialogue, because what is being denied is not the speaker's attitude, but rather the sentence that one can infer when interpreting a *wh*-exclamative, i.e., that Bill is very tall. We cannot reply by denying that the speaker believes it, but we can deny the believed content." These are observations that we share.

Importantly, recent experimental work also challenges the presumed judgment difference between declarative exclamations and *wh*-exclamatives showing that judgments in (8B) above do not stand up to empirical scrutiny that measures the acceptability of relevant patterns. In particular, Villalba (2017) argued based on two experiments that the descriptive content of exclamatives is semantically 'at-issue content' and hence amenable to rejection in a discourse. This recent research on Spanish and Catalan exclamatives is further supported by a large-scale acceptability study (n=112) by Trotzke (2019) on German exclamatives where he demonstrates that there is no difference between *wh*-exclamatives and other forms of exclamations (notably declarative exclamations) when testing the felicity of different rejection strategies like the ones introduced above in (7) and (8).

More specifically, participants in this study had to rate the acceptability of Speaker B's denials on a scale ranging from 1 (= very bad) to 6 (= very good). Crucially, all judgments of exclamation items were at ceiling (ranging from 5.2 to 5.7) and thus in accordance with filler items presenting perfect mini-dialogues (e.g., *wh*-question + corresponding declarative response); see Trotzke (2019) for full set of German items and detailed statistics. Table 1 summarizes some of the results relevant in our context:

Exclamation type	strong denial (e.g., *No!...* German: *Nein!...*)	weak denial (e.g., *Not really,… That's not quite true…*; German: *Nicht wirklich, … Das stimmt nicht ganz...*)
declarative	5.55	5.70
wh-exclamative	5.28	5.46

Table 1. Summary of some ratings from Trotzke (2019).

As Table 1 indicates, both utterance forms allow rejection, and prefer the weak-denial strategy (e.g., *not really* etc.), indicating that the descriptive content is indeed in a way backgrounded in exclamatives like (8), and this backgrounding is the same in declarative exclamations (7), signaled by the overall preference for weak denial in this study. We cannot go into more detail in this paper, but note that although Trotzke's (2019) study on German exclamatives differs from Villalba's (2017) study on Romance (both in the choice of materials and in the methodology used), the two experimental studies taken together support our intuition about the Greek and the English data: the descriptive content of exclamatives can indeed be denied, suggesting that exclamatives feature assertive force. In other words, the rejection strategies of exclamatives and declaratives look more similar than expected under a hypothesis where exclamatives, unlike declaratives, lack assertive force. The denials and rejections appear to target the same descriptive content in both cases.

Additionally, why should we postulate a factivity presupposition to account for the descriptive content of exclamatives like, for example, Zanuttini & Portner (2003) do? Since no one to date has proposed that we need factivity presuppositions to account for the descriptive contribution of declaratives like (7), such an approach would also be on the wrong track when dealing with the descriptive content of exclamatives. Given the experimental evidence and the routine rejections in Greek and English illustrated above, let us now strengthen the empirical claim that exclamatives do not differ much from declarative exclamations by looking at how both can be used as responses to information-seeking questions, the second central data point often cited in favor of distinguishing between exclamatives and declarative exclamations.

2.3 Exclamatives can be used as responses to information-seeking questions

In this section, we examine the felicity of responses in certain dialogue sequences involving exclamatives. Just like with rejection, we use 'response' as a broad category that encompasses direct answers to information-seeking questions, but may contain other second moves in a dialogue that provide the information asked for in a preceding question in more indirect ways (e.g., by means of pragmatic inferencing/implicatures; see Holtgraves 1998; Walker et al. 2011; de Marneffe & Tonhauser 2019). This will become clear in a moment.

Grimshaw (1979: 321) famously argued that exclamatives are always infelicitous as responses to questions. Here is her prominent example:

(12) A: How tall is John?
      B: # How tall John is!
      B': John is very tall.

The *wh*-exclamative presumably conveys the same descriptive content as the declarative assertion in (12B') (though it would be more accurate to say that it is equivalent to *John is extremely tall*, an end-of-scale degree, a point to which we return). Yet, the argument goes, declaratives are felicitous responses, but an exclamative is not; hence the exclamative lacks assertive content. Zanuttini & Portner (2003) and many others have further claimed that the only descriptive content of exclamatives is a factivity presupposition, and a presupposition cannot serve as a response providing new information.

Let us challenge this argument by considering first that the ability or not to respond to a question is not necessarily evidence for assertive force or lack thereof. Many questions, for example, can be responded to by other questions—often rhetorical—or imperatives:

(13) A: Who came to the party?
      B: Who didn't? (Intended to convey: Everyone did).
      B': Ask Mary. (Intended: She will tell you).

It is clear that being a response and being an assertion are not the same thing, and Grimshaw's initial argument needs to be seen in this light. One could argue, of course, as Sadock (1971) and Giannakidou & Mari (2021b) do, that rhetorical questions like (13B) are equivalent to assertions semantically, in which case the clause type (question) does not determine the semantic value or discourse function. And if that is the case, then the distinct clause type of exclamative does not necessitate a distinct semantic or pragmatic type either.

Second, while the previous literature has mainly focused on the type of responses, we would like to explore the type of questions instead. When we do that, we find that exclamatives can indeed be used as responses to information-seeking questions (pace Grimshaw 1979 and others), as long as they do not yield a mismatch at the level of information structure. Look at the following patterns:

(14) A: How fast was Eliud Kipchoge?
      B: Eliud Kipchoge was [very]$_F$ fast.
      B': # [How fast Eliud Kipchoge was!]$_F$
      B'':# [Eliud Kipchoge war$_{'was'}$ aber$_{PART}$ auch$_{PART}$ schnell$_{'fast'}$!]$_F$

The declarative (14B) is a perfect response to a narrow-focus question (14A). (14B') is odd as already pointed out in the literature. Crucially, (14B'')—a German declarative featuring the exclamative particles *aber auch*—is as bad as (14B'), although the syntax is clearly 'assertive' (more on these particles in Section 4). However, (14B''), due to the use of those exclamative particles (and the corresponding exclamative intonation), is interpreted as an exclamation speech act with declarative and hence assertive syntax. Hence, the infelicity of (14B') does not, again, prove non-assertiveness. Instead, it might be due to the nature of the question. (14A) asks directly what the degree of fastness was. But if, as we are suggesting, the speaker's belief of the extreme

degree of fastness is presupposed (see Section 3), then offering a *wh*-exclamative to this type of question is infelicitous.

Contrast the above with the following examples, where the question is not directly about the degree of fastness:

(15) A: Tell me, how did Eliud Kipchoge do in the race?
B: [He was very fast.]$_F$
B': My god! [How fast he was!]$_F$
B'': My god! [Der$_{'this-one'}$ war$_{'was'}$ aber$_{PART}$ auch$_{PART}$ schnell$_{'fast'}$!]$_F$

When the information-structural context is changed to a broad-focus question, we see a clear improvement of both the exclamative (15B') and the declarative exclamation (15B''). We claim that (15B) is also fine in such a context because it no longer expresses narrow focus as in (15B), but instead it can also be interpreted as an all-focus declarative.

These patterns suggest that the second major data point in the literature intended to show that the descriptive content of exclamatives is not asserted is shaky: in addition to the caveat that assertions and responses are not the same thing, exclamatives—just like declarative exclamations—can be used as responses to information-seeking questions provided that they occur in a relevant information-structural context.

Since there is no other substantial argument for a difference between declarative exclamations and exclamatives, we will move on to our proposal, which is that exclamations as a class (*wh*- and declarative ones) indeed convey descriptive content and are emotive assertions of intensity.

3. Greek exclamatives and emotive *pu*

In this section, we present new data from Greek exclamative structures suggesting an affinity of exclamatives to emotive assertions such as *I am amazed/surprised that Bill bakes delicious desserts*, *I am amazed at how delicious the desserts Bill bakes are*. Based on the empirical parallels, we extend the category of emotive assertion to include both *wh*-exclamatives and declarative exclamations, and propose a syntax that captures that.

3.1 Greek *what*-exclamatives: Distribution of *pu*

There is not much discussion of exclamatives in the Greek literature, and our goal in this paper is to document the core patterns. Recall our earlier presentation of the Greek data. We noted that (i) in Greek *wh*-exclamatives appear with *what* and not as a *how*-exclamative (like English), and (ii) the *what*-exclamative contains the complementizer *pu,* suggesting some sort of embedding:

(16) Ti nostima glyka (pu) ftiaxni o Janis!
what delicious sweets that bakes the John
'What delicious desserts John bakes!'

(17) Ti   grigora   pu/*oti/*na etrekse o   Kipchoge!
     what fast   that.pu   run.3SG the Kipchoge
     'How fast Kipchoge ran!'

In employing the complementizer *pu*, Greek exclamatives look like complements of emotive verbs, which famously in the Greek literature select this complementizer. In order to appreciate the significance of this fact, consider that Greek has four complementizers: *oti/pos* (indicative), *na* (subjunctive), and *pu* which is the *emotive indicative* (see Giannakidou 2016; Roussou 2020). Of these, only *pu* appears after verbs of emotion:

(18) I Ariadne thavmase   **pu/*oti/*na** o   Kipchoge etrekse toso grigora.
     the Ariadne was.amazed that.pu   the Kipchoge run.3SG so   fast
     'Ariadne was amazed that Kipchoge ran that fast.'

(19) O   Nicholas kseri/ nomizi   **oti/*pu**   efije   i   Ariadne.
     the Nicholas knows3SG /thinks. 3SG that.IND   left. 3SG the Ariadne
     'Nicholas knows/thinks that Ariadne left.'

(20) Thelo   **na/*pu** kerdisi o   Janis.
     want.1SG SUBJ   win.3SG the John
     'I want for John to win.'

Giannakidou (2009, 2016) and Giannakidou & Mari (2021a) offer extensive discussion of Greek mood patterns. The key piece is the use of the emotive *pu* in the exclamative. Also important is the use of *what* instead of English *how*. *What* plus ADJ is not an otherwise attested combination in Greek, and is certainly not the way to form a degree question. As we can see below, the degree question requires, like in English, a how *wh*-phrase, specifically *poso* 'how much':

(21) Poso/*Ti   grigora   etrekse o Kipchoge?
     how/what   fast   run.3SG the Kipchoge
     'How fast did Kipchoge run?'

(22) Poso/*Ti   psilos ine o   Andreas?
     how/what   tall   is   the Andreas
     'How tall is Andreas?'

Greek *wh*-exclamatives are thus clearly distinguished from interrogative structures in Greek, and as we will argue later, the what-ADJ combination can be thought of as a realization of an abstract extreme degree morpheme akin to *so*. In further support of this, consider that neutral degree *how-much* questions are incompatible with *pu*:

(23) * Poso psilos **pu** ine o   Andreas?
       how tall   pu is the Andreas
       'How tall is Andreas?'

For completeness, we should mention that the degree *wh*-word can be used in an exclamative, but the structure is more marked, and some speakers have difficulty with it:

(24) ?Poso psilos   ine o Andreas!   [marked exclamative]
      how tall   is the Andreas
      'How tall Andreas is!'

However, as already mentioned, this is a marked way to form an exclamative, the default being the *what*/*pu* variant.[4] What is central in this data is that the use of *pu* makes Greek exclamatives look like embedded sentences, specifically on a par with complements of emotive verbs. Let us consider now the properties of these.

3.2 Emotive verbs: Subjective veridicality presupposition and emotive assertion

Contrary to what is often claimed in the literature, emotive verbs do not have a factivity presupposition. Huddleston & Pullum (2002), Egré (2008), Giannakidou (2016), and Giannakidou & Mari (2021a) point out a number of examples illustrating this point:

(25)   Falsely believing that he had inflicted a fatal wound, Oedipus regretted killing the stranger on the road to Thebes.

Huddleston & Pullum (2002) claim that in this sentence *it is not entailed* that Oedipus inflicted a fatal wound. Here is another example:

(26)   John wrongly believes that Mary got married, and he regrets that she is no longer unmarried. (Egré 2008: 30).

Giannakidou (2016) summarizes that "one can have an emotive attitude towards something that one *believes* to be a fact, but may not *actually* be a fact. One may *believe* that something happened (a *believed* fact) and then feel happy or sad about it. Hence, emotive verbs need not be veridical in the objective sense (as *know* is) but subjectively, since emotive verbs still rely on the emotive subject's full commitment to *p*." Giannakidou continues that some emotive verbs, in addition, have a contrary presupposition (see also Baker 1970 who proposed it for all emotives):

(27)   Negative presupposition of *contrary* emotive factives (Giannakidou 2016)
       $[\![i$ is surprised that $p]\!]$ is defined if only if: i believed that $\neg p$, at a time $t' \prec t_u$ (where t_u is the utterance time).

This is the reason why the sentence below is odd:

(28)   Ariadne is surprised that Nicholas participated in the marathon, #and she always thought that he would do it.

---

[4] Greek is well known to allow polymorphy in grammar, from person marking to comparatives and imperatives, hence the use of multiple strategies is not a surprise. As we say in the text, however, the two strategies in the exclamative are not in free variation. The *what/pu* exclamative is the standard way, the degree strategy being considerably marked.

In other words, *contrary* emotive predicates such as *be surprised*, *be amazed* are defined based on the individual anchor *i*'s prior beliefs, and carry a negativity expectation.[5] I am amazed at something and I am surprised by something only if I expected something not to be the case. When the complement concerns a degree, this negativity is responsible for producing intensity:

(29)   Ariadne is surprised at how tall Nicholas is, #and she always thought that he is extremely tall.

In (29), the use of *surprise* and *how tall* drives the intensity of the statement because the extreme degree is contrary to expectation. Interestingly, *how tall* gets interpreted as *extremely tall* in this context, despite the fact that it lacks an apparent degree modifier—a point to which we return. In any case, it is the combination of the contrary emotive *be surprised* with the extreme degree that produces an intensity of emotion otherwise not attested with emotives as a class: *John is amazed that Mary is here* is emotive but not intense.

We will lay out now the latest version of the theory of Giannakidou & Mari (2021a) (GM) for emotive verbs that we will adopt. All emotive predicates (like *glad*, *sad*, *happy*, *surprised*, etc.), according to GM, express emotions. Emotions are attitudes (or, psychological states) towards believed facts or potential facts (as is the case with *fear*). Emotive attitudes are gradable: one can be *very* sad, *a little bit* sad, *terribly* sad—or, on the other hand, *not sad at all*, or *only a little bit sad*. It is therefore no accident that emotional attitudes often employ adjectives that are gradable and scalar.

GM propose a mapping from degrees of emotions to worlds, which we illustrate with their example, *irritated*. The scalar predicate establishes a threshold *d*, above which one is irritated and below which one is not. The mapping partitions the emotive modal base $\mathcal{E}$ into worlds above the threshold in which *i* has the emotion and those in which she does not. This partition is driven by the threshold *d*. Note (see Figure in [30]) that in the worlds in which *i* has the emotion, *p* is true. In other worlds, $\mathcal{E}$ is a set of worlds ordered by the emotion (sentiment) *S*, we can think of it as the emotive modal space. The set of worlds is partitioned into two equivalence classes of worlds. One is the set of worlds in which the attitude holder has the emotion and *p* is true. The other one is the set of worlds in which the attitude holder does not have the emotion and *p* is false.

(30)

Degree scales   World ordering
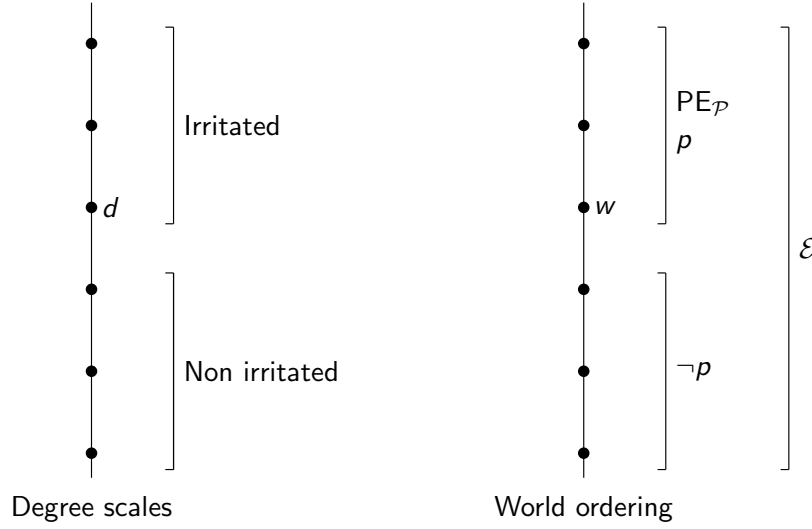
This partitioning allows us to define *Positive-Extent-worlds* (PE) for *p*:

(30') $\text{PE}_{\mathcal{P}} = \{w' \in \mathcal{E}_{\mathcal{P}} : w'$ where the propositions in $\mathcal{P}$ are true$\}$

In other worlds, $\mathcal{E}$ is a set of worlds ordered by *S*. The set of worlds is partitioned into two equivalence classes of worlds. One is the set of worlds in which the attitude holder has the emotion and *p* is true, i.e, the positive extent (PE). The other one is the set of worlds in which the attitude holder does not have the emotion and *p* is false. Here, the set $\mathcal{P}$ is the singleton set {p}. So $\text{PE}_{\mathcal{P}}$ contains all the worlds in which *p* is true. In $\text{PE}_{\mathcal{P}}$ *i* has sentiment *S*. But not all worlds in $\mathcal{E}$ are PE worlds for *p*; $\mathcal{E}$ only partially supports *p* since $\text{PE}_{\mathcal{P}}$ is a subset of $\mathcal{E}$ (the emotive space). The complement of $\text{PE}_{\mathcal{P}}$ contains ¬p worlds. The semantics proposed here may remind the reader of the *Best* ordering used for modals (Portner 2009); it is indeed a similar ordering function, only for GM, the ordering source for emotion merely contains *p*.

    The starting point of this section was our observation that the use of the complementizer *pu* in Greek exclamatives suggests that we could also look at exclamatives as instantiating embedded structure, on par with complements of emotive verbs. If exclamatives are parallel to emotives in this particular sense, they are also not factive, and they carry a similar presupposition and assertion. The presupposition is subjective veridicality, i.e., that the individual anchor *i,* which is the subject of the attitude verb, believes *p* to be true, and the assertion says that in all worlds where *i has the emotion designated by the predicate* p is also true:

(31)   *Semantics of emotives* (Giannakidou & Mari 2021a):
      (i) $[\![i \text{ V-emotive } p]\!]^{w, Dox(i), \mathcal{E}}$ is defined iff
      a. Dox(*i*) contains only *p* worlds (subjective veridicality)
      b. E is nonveridical and contains *p* and ¬*p* worlds (emotive nonveridicality).
      c. If defined: $\forall w' \in \text{PE}_{\mathcal{E}} \, p(w')$ (assertion of emotion)

The indices correspond to the following. Dox(i) is the set of doxastic alternatives, i.e., belief worlds, of the individual anchor i, which is the subject of the sentence who bears the emotion. Dox(i) is veridical, i.e., entails p since all worlds in it are p worlds. This is the subjective presupposition of belief of p, and not factivity. $\mathcal{E}$ is the emotion space, which is partitioned into a positive (PE) and a negative extent. The emotive assertion conveys that in all worlds consistent with the emotion of the subject i, p is true. In addition, contrary emotives have the negative expectation presupposition such as (27) which adds a counterexpectation that brings intensity.

Adopting this parallelism between emotives and exclamatives, we argue that *wh*-exclamatives and declarative exclamations have the assertion and presuppositions conveyed by sentences with emotive verbs. The intensity of exclamatives suggests the presence of a negative presupposition such as (27). Syntactically, we posit a higher emotive V for exclamatives, and we proceed now to show how this works at the syntax-semantics interface.

3.3 The syntax and semantics of emotive assertions I: emotive V

In this section, based on the above analysis we argue that exclamatives, such as (32), are emotive assertions akin to assertions containing the predicates *be amazed*, *be surprised* overtly in (33):

(32)   How fast Eliud Kipchoge was!

(33)   I am amazed at how fast Eliud Kipchoge was.

We claim that these sentences are identical in terms of what they assert and what they presuppose, and we will therefore group them together under the label 'emotive assertions'. They both assert that the speaker has the emotion of amazement towards the believed proposition 'Eliud Kipchoge was extremely fast', and presuppose that the speaker has this very belief.

Let us begin our analysis by pointing out that our idea of treating the sentences above as one single phenomenon is not uncommon in the linguistic literature—quite the contrary, in fact. It is reminiscent of the phenomenon of 'insubordinate clauses', where embedded clause structures are used as root clauses (see, e.g., Evans 2007; D'Hertefelt 2018; and Section 4 below for more references). For many of those insubordinate cases (e.g., English wish-clauses: *If only Kipchoge participated in the race!*), grammar reference books characterize them as incomplete sentences where a matrix frame is omitted (Quirk et al. 1985; Huddleston & Pullum 2002: Ch. 10). In our analysis, we adopt this general explanation but we, for the first time, explore how it can be formally spelled out at the syntax-semantics interface, and which conclusions can be drawn from such an approach for the illocutionary or not status of exclamations.

To begin with, note again that the empirical basis of our proposal is that (i) exclamatives in general feature assertive content (Section 2) and that (ii) the distribution of the Greek complementizer *pu* makes Greek exclamatives look identical to complements of matrix clauses containing emotive verbs (Section 3.1). Based on those observations, we therefore submit that the wh-exclamative is the complement of a silent declarative main clause containing an emotive predicate (34), and that this declarative, at the level of illocutionary force, is nothing more than an assertion. As a first step, let us thus sketch our claim as follows:

(34)   [NULL-CP ... V-emotive [CP [C *pu* ...]]]

(34) illustrates that the embedding predicate of the silent matrix clause involved in the interpretation of the exclamative must be emotive ('V-emotive') because otherwise the predicate would not select the complementizer *pu* instead of other C elements in the inventory of Greek (Section 3.1 above). Plus, the predicate must also be emotive because the exclamative features an expressive interpretation (which can be paraphrased as 'Speaker is amazed at *p*'). Importantly, the emotive component of exclamatives in our analysis is not a part of its illocutionary force; rather, it is part of the proposition. To see this, compare our approach to the famous 'performative hypothesis' by Ross (1970), which is also postulating a silent main clause. Look at two of his examples (Ross 1970: 222-223):

(35) a. Prices slumped.
      b. I say to you that prices slumped.

Ross (1970: 223) claims that sentences like (35a) "must be analyzed as being implicit performatives, and must be derived from deep structures containing an explicitly represented performative main verb." In other words, the sentence (35a) involves a syntactic deep structure that contains two sentences (35'), and the two sentences are derived from each other via transformational rules, which we cannot discuss in detail here.

(35') a. [s Prices slumped.]
       b. [s I say to you [s (that) prices slumped.]]

Our idea of a silent matrix clause is very similar, but it crucially differs from Ross's account because we are not deriving a speech act (aka the illocutionary force) from a silent main clause. Instead, we postulate a null element to represent parts of the propositional content of exclamatives that we think are implicitly understood, but not phonetically spelled out in exclamatives. Note, again, that we claim that (32) and (33) are identical in terms of what they assert and what they presuppose, and that both are 'emotive assertions'. A performative analysis à la Ross (1970) for those cases would therefore look like (36), where the deep structure illustrates that the whole utterance is interpreted as an assertion:

(36) [s I assert that [s I am amazed at how fast Eliud Kipchoge was!]]

Our approach in (34) differs from (36) and is not performative. Rather, (34) says that the Greek exclamative (37) is a fragment of the declarative version in (38):

(37) Ti   grigora pu   etrekse o Kipchoge!
      what fast   that.pu run.3SG the Kipchoge
      'How fast Kipchoge ran!'

(38) Meno   ekpliktos pu   o   Kipchoge etrekse toso grigora!
      stay   surprised that.pu the Kipchoge run.3SG so   fast
      'I am surprised/amazed that Kipchoge ran *so* fast.'

The content of the missing emotive verb is one that includes a counterexpectation, as we mentioned earlier, and it can be positive (as we are discussing here) or negative (as in *I am bothered by what*

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I perceive as Kipchoge running extremely fast). Given the two examples in (37) and (38), two issues regarding our structure in (34) arise:

- How can the different word orders in the Greek exclamative (37) and the Greek declarative (38) be accounted for?
- How should we account for the fact that exclamatives are always interpreted as conveying the surprise of the speaker (and not that of any other subject)?

Let us start with the second question. Exclamatives are always anchored to the speaker, and it is thus no surprise that the sentiment conveyed belongs to the speaker. According to our approach, this can be accounted for by saying that exclamatives appear to be first person emotive assertions, and the omission of the higher verb becomes akin to the omissions found in other first person cases, e.g., in first person doxastics, e.g., *John is a good student* is equivalent to *I think/believe John is a good student.*

Conceptually, the necessity of speaker orientation can also be understood to follow from general assumptions about pragmatic inferencing and origo. If we formalize [±speaker orientation] as the more general feature [±origo],[6] there is only one option for [+origo] (I, here, now), but many options for [-origo] (1st person, 2nd person, 3rd person; here, somewhere else; past, present, future). Based on Gricean Manner and Quantity reasoning, the hearer interprets the unspecified structure (34) as the simplest unmarked [+origo], which means that the subject of the matrix clause containing the emotive predicate V-emotive is pragmatically derived as being the speaker (and the whole event as taking place in the here and now, which is true of the exclamative). We can thus revise our representation as follows, where [+origo] stands for 'speaker, here, and now':

(34') [NULL-CP ... [$_{v}$P XP-subject$_{[\pm origo]}$ V-emotive [CP [C *pu* ...]]]]
        => PRAGMATIC INFERENCING
        [NULL-CP ... [$_{v}$P XP-subject$_{[+origo]}$ V-emotive [CP [C *pu* ...]]]]

Let us now turn to the other issue mentioned above: How can the different word orders we see in (37) and (38) be derived syntactically?

(37) Ti grigora pu   etrekse o Kipchoge!
      what fast   that.pu run.3SG the Kipchoge
      'How fast Kipchoge ran!'

(38) Meno   ekpliktos pu   o   Kipchoge etrekse   toso grigora.
      stay   surprised that.pu the Kipchoge run.3SG so   fast
      'I am surprised that Kipchoge ran that fast.'

Note again that despite lacking an apparent degree modifier, both relevant phrases in the two examples (i.e., *ti grigora* and *toso grigora*) get interpreted as 'extremely fast', yielding the respective intensities of the utterances. In this respect, the two phrases are interpreted in the same

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[6] Recent work by Sode & Truckenbrodt (2018) and Truckenbrodt (2019) likewise uses [±origo] in its syntax, but in a slightly different context (namely as a verbal mood feature to characterize different clause types in German, in combination with the two syntactic operators WANT and BELIEVE).

way (see Section 3.4 below for more details on this degree interpretation). However, while *toso grigora* can stay in situ (39a), *ti grigora* has to move to the left periphery of the CP headed by the complementizer *pu* (37), otherwise the sentence becomes ungrammatical (39b). Why is that so?

(39) a. O   Kipchoge etrekse   toso grigora!
          the Kipchoge run.3SG so   fast
          '(Wow!) Kipchoge ran so fast! (It's faster than anyone had expected!)'

      b. * O   Kipchoge etrekse   ti   grigora.
          the Kipchoge run.3SG what fast
          (intended: same as [39a])

To understand this pattern, it is also important to see that in the version with *toso grigora* the syntactic structure is in fact ambiguous between an emotive reading (that carries the negative expectation presupposition; see Section 3.2) and a non-emotive reading illustrated in (39'a):

(39') a. O   Kipchoge etrekse   **toso grigora**.
          the Kipchoge run.3SG so   fast
          '(Oh well,) Kipchoge ran so fast. (It's not surprising at all that he is the winner again.)'

The two readings are disambiguated by different intonation and pragmatic context,[7] and the syntactic configuration as such does not provide any cue for the relevant interpretation. This is completely different in the case of *ti grigora*: here, the word order in (39b) is not possible, and the only grammatical version in (37) obligatorily results in an emotive interpretation which carries the negative expectation presupposition.

This data pattern is reminiscent of other emotive syntactic constructions where the movement of a phrase to the left periphery is likewise obligatory, and where we can thus observe a root/non-root asymmetry. A case in point is the English phrase *wh-the-hell*. In particular, as first noted by Lasnik & Saito (1984), English appears to disallow a *wh*-word with *the hell* to remain in situ (e.g., **Who is in love with who the hell?*; see also Pesetsky 1987). Den Dikken & Giannakidou (2002) have shown that the grammatical version where *wh-the-hell* moves to the left periphery (e.g., *What the hell is he doing?*) carries a presupposition of negative attitude and can thus be considered emotive.
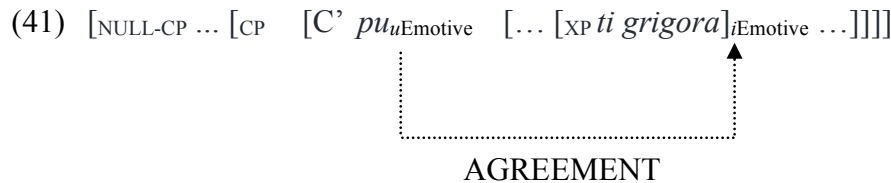
The same also holds for many more cases where the *wh*-element has a degree reading similar to our Greek case *ti* ('what') in *ti grigora* ('what fast'). For example, the phrase [*how cool*] in (40) must move to the left periphery when expressing the degree reading (40a), but it is ungrammatical in situ (40b)—in contrast to the non-degree reading, which is fine in both (40c) and (40d); see Trotzke (2020); Nye (2009):

(40) a.   How cool is that!   [emotive reading]
      b. * That's how cool!   [intended: emotive reading]
      c.   How cool is that?   [question reading]
      d.   That's how cool?   [echo-question reading]

---

[7] In many languages of the world, intonation is used for signaling exclamation readings of utterances—a topic to which we have nothing new to add in this paper on the syntax-semantics of exclamations (but see recent experimental work by Bianchi et al. 2016; Repp 2020; Rett & Sturman 2020).

Given these similarities, in what follows we adopt a syntactic analysis that has already been used for emotive syntactic constructions which feature a root/non-root asymmetry like the ones illustrated above. In particular, Bayer & Trotzke (2015) and Bayer & Dasgupta (2016) have proposed a syntactic agreement mechanism for what they call 'emphatic fronting' and 'emphatic topicalization', respectively. Our Greek case of obligatory movement of *ti grigora* combined with the presence of the complementizer *pu* is a particularly striking case in this context because of the overt (and likewise obligatory) complementizer *pu*, which we *know* is emotive (see Section 3.1). Let us now turn to our analysis in more detail.

According to Chomsky's (2000, 2001) so-called 'probe-goal agreement' mechanism, a probe with an unvalued (uninterpretable) feature uF scans its locally accessible c-command domain for a category with a matching (interpretable) feature iF that values uF (and thus causes its deletion). According to Chomsky (2001: 5), "[t]he natural principle is that the uninterpretable features, and only these, enter the derivation without values, and are distinguished from interpretable features by virtue of this property." Given this conceptual background, we notice a problem, however. We would have to postulate an emotive feature in C^0 (associated with *pu*) that probes the degree phrase [*ti grigora*]. This emotive feature, by virtue of its unvalued status, would have to be uninterpretable, according to Chomsky's (2001) valuation/interpretation biconditional:

(41) $[_{\text{NULL-CP}} \ldots [_{\text{CP}} \quad [_{\text{C'}} \ pu_{u\text{Emotive}} \quad [\ldots [_{\text{XP}} \ ti\ grigora]_{i\text{Emotive}} \ldots]]]]$

AGREEMENT

However, note that the emotive interpretation of *pu* is independent of the degree expression; *pu* can also appear without the expression of extreme degree—the only licensing condition being that *pu* is embedded by an emotive predicate in the matrix clause. In other words, the degree phrase contributes to the emotive interpretation (adding intensity; see Section 3.4 below), but it does *not* constitute emotivity. Accordingly, we need a theory that, in addition to (42a), allows configurations where the licensing direction is turned around as in (42b).

(42) a. X   Y   b. X   Y
      uF iF iF uF

In accordance with recent approaches by Bayer & Trotzke (2015); Bayer & Dasgupta (2016); and Trotzke (2017a), we therefore adopt the feature-sharing version of Agree formulated by Pesetsky & Torrego (2007: 268):

(43) *Agree: feature-sharing version*
     a. An unvalued feature F (a *probe*) on a head H at syntactic location α ($F_α$) scans its c-command domain for another instance of F (a goal) at location β ($F_β$) with which to agree.
     b. Replace $F_α$ with $F_β$, so that the same feature is present in both locations.

Importantly, the approach to probe-goal agreement as feature sharing by Pesetsky & Torrego (2007) dissociates agreement from interpretability. It allows an interpretable feature to probe an

uninterpretable matching feature (adopting a notational convention, in [44b,c] agreement is expressed by an arbitrary value that fills the empty slot in [ ]).

(44) a. [NULL-CP ... [CP   [C' *pu*   [... [XP *ti grigora*] ...]]]]   == AGREE ===>

           *i*Emotive[ ]   *u*Emotive[ ]

     b. [NULL-CP ... [CP   [C' *pu*   [... [XP *ti grigora*] ...]]]]   == MOVE ===>

           *i*Emotive[4]   *u*Emotive[4]

     c. [NULL-CP ... [CP [XP *ti grigora*]   [C'*pu*   [...   [XP *ti grigora*] ...]]]]

              *i*Emotive[4]   *u*Emotive[4]

(44) illustrates that the degree phrase [*ti grigora*] becomes part of the emotive interpretation of the utterance via agreement, and this agreement triggers movement of the degree phrase to the specifier of emotive *pu*.

One question that could be raised in the context of our analysis in (44) is why we still need the matrix NULL-CP structure containing the V-emotive that selects the emotive complementizer *pu* in our syntax for the Greek exclamative. Note that the literature on emphatic fronting and topicalization cited above deals with movement types that can be characterized as main clause phenomena. In other words, we could just as well claim, as one could argue, that the emotivity is not encoded in a still higher matrix structure by the null V-emotive, but rather by the complementizer *pu* (and thus in the C^0 position) alone. Under this hypothesis, we would no longer propose that the Greek exclamative formed with *ti grigora* is an embedded structure (where *pu* is selected by a matrix V-emotive); rather, Greek exclamatives like (37) would be main clauses, involving the agreement and movement illustrated in (44), but crucially without the higher NULL-CP. Such an approach would in fact be in line with the more common view of exclamatives, according to which they are main clauses and contain their emotive component (often in the form of an exclamation operator) in the left periphery of the matrix CP (see **Munaro & Obenauer 1999** for a cartographic account and Section 2.1 above for the general approach).

There are two major arguments against such an objection to our analysis: First, the core of our argumentation in this paper is that exclamatives are fully identical to assertions like (45) in terms of what they assert and what they presuppose, hence our analysis and the notion of 'emotive assertion' in Section 3.2 above.

(45) Meno   ekpliktos pu   o   Kipchoge etrekse   toso grigora!
      stay   surprised that.pu the Kipchoge run.3SG so   fast
      'I am surprised/amazed that Kipchoge ran so fast.'

The empirical base for those who claim that assertions and exclamatives are *not* identical in their semantics/pragmatics has been discussed in Sections 2.2 and 2.3, and we hope to have shown convincingly that this empirical base is shaky at best. If it is thus the case that the assertion in (45) and the corresponding exclamative in (37) are mere versions of each other, we would like to represent this fact by means of a common syntax—and this exactly what we are proposing above

with our claim that exclamatives are embedded (signaled in Greek by the obligatory overt complementizer) under an assertive V-emotive.

The second argument in favor of our approach and against a main clause analysis concerns the observation that exclamatives behave fundamentally differently from other syntactic configurations that look like embedded structures, but are in fact 'insubordinated' main clause uses of embedded syntax. In order to show that, we will turn to German data in Section 4 below because German is particularly rich in its inventory of embedded clause structures used as main clauses (e.g., Truckenbrodt 2013).

For now, we conclude that our syntactic analysis above can account for the different word order we have seen in the Greek exclamative with *ti grigora*, while at the same time representing the fact that the exclamative is identical in meaning to the corresponding declarative emotive assertion where an emotive predicate selects the complementizer *pu* and embeds a proposition that is, again, identical to the proposition conveyed by the exclamative. We now turn to a further similarity between exclamatives and their declarative counterparts and focus on their common degree interpretation.

3.4 The syntax and semantics of emotive assertions II: *SO*-degree

The *pu*-complement in the declarative contains *toso grigora* 'that fast', which gets interpreted as 'extremely fast'. *Ti grigora* 'what fast' seems to be interpreted the same way. But *toso grigora, ti grigora* do not contain overt degree morphology. Where does the extreme degree come from?

These non-canonical uses of degree morphology, we will argue, are realizations of an abstract extreme degree morpheme that we will call *SO*-degree. *John ran so fast!* has precisely this intense degree interpretation and also lacks an expected degree modifier such as *very*, *extremely* and the like (for a detailed discussion of such extreme degrees, see Morzycki 2012). Here we will propose the following:

(46) ⟦SO+adjective⟧ = the property of the Adjective defined to an extreme degree by the speaker.

The concept of 'extreme' in degree, we believe, has an objective basis and is not purely subjective: a temperature of 25 C is *not* extremely hot, though it might be perceived as such by someone with sensitivity to heat. It is not decisive for our discussion to establish the precise nature of extreme degree, and the relatively uncontroversial assumption that it relies on both fact and some subjective factors will suffice. Importantly, just like the emotion itself, the extreme degree will be also anchored to the speaker, the extremity of degree will always be defined subjectively by him or her. Notice that even in embeddings the actual *so* morpheme can be defined wrt the speaker: *Ariadne thinks that Nicholas is so smart*! conveys the speaker's attitude of extreme smartness (as well as Ariadne's in a different interpretation). The unembedded *so*, of course, is anchored to the speaker only: *Nicholas is so smart!*

The exclamative, thus, has the following meaning; the relevant anchor is always the speaker *s*, and $\mathcal{E}$ is the emotive space contributed by the null predicate ('V-emotive' in our syntactic analysis above) *be surprised/amazed*:

(47) ⟦Ti grigora pu etrekse o Kipchoge!⟧$^{w,Dox(s), \mathcal{E}}$ is defined iff
   a. Dox(*s*) contains only worlds where Kipchoge run SO-fast (subjective veridicality)

b. E is nonveridical and contains p and $\neg p$ worlds (nonveridicality of emotion).
c. If defined: $\forall w' \in PE_\mathcal{E}$: Kipchoge ran SO-fast in w' (assertion of emotion)

This analysis derives the meaning of the *what*-exclamative without positing an exclamation operator, and captures its affinity with the emotive predicate; it allows a very intuitive explanation of the flavor of the exclamative.

As we mentioned earlier, emotive verbs can of course also take less intense complements, i.e., lacking the SO-degree, and this allows them to be neutral in intensity. The difference, therefore, between a regular emotive assertion and the *wh*-exclamative is that the latter always expresses an emotive stance towards a proposition that contains an extreme degree. We can think of this as *intense* emotivity—and we believe that such intense emotivity lies at the foundation not just of exclamatives but of the broader phenomenon of *mirativity*.

Crucially, intensification in exclamatives is always part of the descriptive content since it is due to the emotive assertion hence it patterns with other forms of 'emphasis for intensity' at the propositional level (see Beltrama & Trotzke 2019 for several lexical and syntactic strategies).[8] In other words, intensification does not derive from an illocutionary operator, but from the emotive assertion plus extreme degree if the degree is available. According to our analysis in (47), it is now easy to see that the declarative exclamation can receive exactly the same treatment:

(48)   ⟦O Kipchoge etrekse toso grigora! 'Kipchoge run so fast!'⟧$^{w,Dox(s),\,\mathcal{E}}$ is defined iff
a. Dox(s) contains only worlds where Kipchoge run SO-fast (subjective veridicality)
b. E is nonveridical and contains p and $\neg p$ worlds (nonveridicality of emotion).
c. If defined: $\forall w' \in PE_\mathcal{E}$: Kipchoge ran SO-fast in w' (assertion of emotion)

Hence, there is no difference between the declarative exclamation and the *wh*-exclamative—as we have been arguing in the context of negation and responses to *wh*-questions (Sections 2.2 and 2.3). Both feature embedding under a covert emotive predicate *be surprised/amazed*, and a SO-degree morpheme (though a declarative emotive may lack it, recall *It snowed in Barcelona!*). The realization of the extreme degree can be *so* or a *wh*-morpheme, but also interjections such as *wow* or *boy* as in *Wow, he ran fast!*, and *Boy, it rained!* where it is understood that he ran fast and that it rained a lot. In cases where the degree SO is absent such as *It snowed in Barcelona!* there is mere expression of intensity due to the counterexpectation of the null emotive verb.

Our analysis, by not appealing to illocutionary operators, argues that exclamation is an *attitude* rather than a speech act, and this seems to be well motivated by the facts we examined in the preceding discussion. The illocutionary operator approaches will have difficulties capturing the similarities between emotive attitudes and exclamatives we pointed out and, most importantly, it is difficult to pinpoint exactly what the exclamative illocutionary force might be.

What *could* it be? It is very hard to offer an answer because exclaiming seems to cut across clause types, including declaratives (including SO-assertions). As already mentioned at the outset of our paper, more examples that might fall into one class with exclamatives semantically include metalinguistic comparatives (49a), questions (49b), and imperatives (49c):

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[8] Note that there are also strategies of intensification (even with SO-degrees) that are based on adding non-descriptive content like intensifying speaker commitment and attitudes; cf. the use of so-called 'drama *so*' (see Beltrama & Trotzke 2019 for detailed discussion and comparison to SO-degrees that are part of the denotation):
(i)   Chris is SO next in line (Potts 2005)

(49) a. I'd rather die than marry him! (Giannakidou &Yoon 2011)
      b. John will come to the party?! (Really?)
      c. Open the door, damn it!

Given this variation, it seems implausible to say that exclamation (the force claimed for exclamatives) is a specific, distinct speech act. Rather, the common semantic feature of all those examples is an attitude of emotion, and we think this change of perspective offers a promising basis for understanding the representation of emotion in language including a number of phenomena that fall under the rubric of 'mirativity' involving certain lexical and/or morphological markers (DeLancey 1997; Peterson 2010) or syntactic strategies of 'mirative fronting' (Cruschina & Bianchi 2021; Trotzke 2017b). As for the respective syntactic expressions of the attitude of emotion, the central idea of our analysis of the exclamative cases has been that they are embedded structures, but of course the function of emotivity in non-assertions like the above sentences will require some more research—a task that we leave for future research.

In the following final section, we present data from another language that further support our central idea that exclamatives are in fact assertions. In particular, we turn to German because this language is particularly rich in exclamatives as well (see d'Avis 2016). What is more, German, in its inventory of exclamatives, often uses syntactic configurations that have been termed 'insubordinates' in the literature. In the following section, and based on our analysis above, we will claim that these syntactic structures (at least in the domain of exclamatives) are not 'insubordinated' at all: they can be characterized as emotive assertions and are thus embedded under a null predicate 'V-emotive', just like we have argued for the Greek data above.

4. German exclamatives as subordinated structures

In this section, we focus on a phenomenon that has been termed 'insubordination' by Evans (2007) in a cross-linguistic perspective: the use of embedded clause structures as root clauses (see also D'Hertefelt 2018 for recent typological work). German is particularly rich in these constructions, which have been discussed in terms of 'independently used verb-final clauses', so-called 'solitaires' (Schwabe 2006, 2007), and 'V-final root clauses' (Truckenbrodt 2006). In this context, a prominent case are dependent clauses that take on an emotive interpretation as soon as they are used in root contexts: so-called *that*-exclamatives.

4.1 Germanic insubordination

Let us consider an example. As soon as the following German embedded clause introduced by *dass* ('that') in (50a) is used as a root clause, it takes on an emotive meaning and is interpreted as an exclamative (50b). We abstract away from prosodic differences here; see Truckenbrodt (2013) for the relevant intonational patterns.

(50) a. Ich weiß, [dass der   schön   singen kann].
          I   know   that this.one beautiful sing   can
          'I know that he can sing beautifully.'

b. Dass der   schön   singen kann!
   that this.one beautiful sing   can
   'How surprising that he can sing beautifully!'

This pattern can also be found in further Germanic languages. Consider examples from Dutch (51a) and Swedish (51b); see Bennis (1998) and Delsing (2010):

(51) a. Dat hij die   boeken kan lezen!   [Dutch]
        that he those books   can read
        'Wow, he can read those books!'
     b. Att du   hann   till   mötet!   [Swedish]
        that you reached to   meeting.DEF
        'What a surprise that you reached the meeting!'

These cases are interesting and relevant in the context of the Greek data that employ a complementizer (*pu*) we discussed earlier. On a par with Greek, this type of complementizer exclamative—at least in Dutch and German—features a word order that is typical of embedded configurations in those languages (i.e., SOV). In what follows, we will focus on German to illustrate that this data point. Before we discuss the details, let us highlight that the German data in particular dovetail nicely with our analysis proposed above, where exclamatives are embedded under a null V-emotive, and further support the idea that exclamatives are in fact assertions. Specifically, German features many cases where embedded syntax is used as a main clause, and it is easy to see how those cases differ from the exclamatives, where we have been claiming throughout the paper that they are not main clauses, but rather embedded structures under a null V-emotive (see Section 3.3).

To illustrate this point, let us briefly look at the case of so-called verb-final *ob*-interrogatives in German. The complementizer *ob* ('whether') in German is used for embedded questions, but can also head an independent main clause, expressing a special question-interpretation (see Zimmermann 2013 for details). The crucial point in our context is that the variants in (52a) and (52b) cannot be used in the same pragmatic context, indicating that the *ob*-interrogative in (52b) cannot be treated as an elliptic version of the structure in (52a); example and judgement taken from Sode & Truckenbrodt (2018: 123-124) and Truckenbrodt (2013: 235):

(52) A: Warum versuchst du, den Stein zu heben?
          'Why are you trying to lift the stone?'
     B: a. Ich will   wissen/frage mich,   ob   ich das   schaffe.
           I   want know/ask   myself whether I   that   manage
        b. ≠ #Ob   ich das   schaffe?
              whether I   that   manage

Now recall what we have already illustrated in Section 2.3 in great detail: exclamatives can in fact be used as responses to questions in a dialogue, in contrast to what the previous literature has claimed. Observe the following pattern, where we see that both the declarative assertion (53a) and the exclamative (53b) can be used for responding to the question in (53):

(53) A: Wie denkst du über Eliud im Olympia-Marathon?
          'How do you think about Eliud in the Olympic Marathon?'
      B: a. Ich bin überrascht, dass er so schnell war!
            I   am surprised   that he so fast   was
         b. Dass er so schnell war!
            that   he so fast   was

The felicity of German *that*-exclamatives as responses to questions has recently also been confirmed experimentally by Trotzke & Villalba (2020) who additionally show that this pattern also holds for Catalan, another language that features *that*-exclamatives. The contrast to the infelicity observed for the 'insubordinated' *ob*-interrogative in (52) is sharp, and (53) suggests that the two *dass*-configurations in (53a) and (53b), in contrast to the two interrogative variants in (52), are indeed identical in meaning, and not only in their syntax. This supports our central claim that (53b) is an elliptical version of the structure in (53a)—in contrast to 'insubordinated' cases like German *ob*-interrogatives, which indeed instantiate main clauses. After having pointed out this additional piece of evidence for our general account that, syntactically, exclamatives are embedded under a null V-emotive, let us now discuss German exclamatives in more detail and thereby provide some more evidence from German for our approach that exclamatives are indeed assertive (or, more precisely, emotive assertions, in our terms).

4.2 German exclamatives: Embedding, assertiveness, and particle distribution

Note first that unambiguous exclamatives in German are always verb-final and thus feature embedded word order. This holds for *that*-exclamatives (54a) and *wh*-exclamatives alike (54b):

(54) a. Dass der   schön   singen kann!   [only exclamative]
          that this.one beautiful sing   can
          'How surprising that he can sing beautifully!'
      b. Wie schnell der   laufen kann!   [only exclamative]
          how fast   this.one run   can
          'How fast he can run!'

It has often been pointed out in the literature that the clause type 'exclamative' in German is intended to cover many more configurations (e.g., *wh*-V2- or V1-exclamatives); see d'Avis (2016) for a recent overview. However, an example like (55) is structurally ambiguous between a question and an exclamation reading (the same holds for V1-exclamatives, modulo intonational differences due to word order). This is why German makes heavy use of so-called modal particles (also called 'discourse particles'; more on this below), which clearly disambiguate between the exclamation (56a) and the question (56b) reading:

(55) Wie schnell ist der   ~~ist~~!/?   [question or exclamative]
      how fast   is this.one is

(56) a. Wie schnell ist der aber auch ~~ist~~! [only exclamative]
how fast is this.one PART PART is
'How fast he is!'
b. Wie schnell ist der denn/wohl ~~ist~~? [only question]
how fast is this.one PART PART is
'How fast is he (I'm wondering)?'

Of course, not only modal particles, but also intonational means help to disambiguate between the two readings (for V1-exclamatives in this context, see Brandner 2010), and it has recently been shown which prosodic features exactly are involved in distinguishing between V2 *wh*-questions and V2 *wh*-exclamatives in German (Repp 2015, 2020). Be that as it may, we highlight again here that the only syntactic configurations that unambiguously express the exclamative reading are the verb-final structures in (54) above—and this corresponds to the embedded word order, as already mentioned.

When we now turn to the choice of complementizers, we observe that the case of *dass*-exclamatives are the only version where German uses a complementizer in exclamatives. Crucial for our claim that exclamatives are emotive assertions and, syntactically, the complement of assertive clauses is the fact that in German the complementizer *dass* ('that') is the typical complementizer that is selected by verbs in assertive contexts (57a), and it is also fine with emotive predicates (57b), as already seen in (53a) above. However, it is completely ungrammatical in non-assertive contexts (57c):

(57) a. Andreas glaubt, dass Eliud eine Pause gemacht hat.
Andreas believes that Eliud a break made has
'Andreas believes that Eliud took a break.'
b. Andreas ist erstaunt, dass Eliud eine Pause gemacht hat.
Andreas is amazed that Eliud a break made has
'Andreas is amazed that Eliud took a break.'
c. * Andreas möchte wissen, dass Eliud eine Pause gemacht hat.
Andreas wants to.know that Eliud a break made has

Accordingly, the only case in German where we find a realization of the C position in exclamatives suggests that this position can only be filled by an element that is known for occurring only in assertive contexts. Other non-assertive C choices like interrogative *ob* already introduced in (52) above are not available both with emotive predicates (58a) and in exclamatives (58b):

(58) a. * Andreas ist erstaunt, ob Eliud eine Pause gemacht hat.
Andreas is amazed whether Eliud a break made has
b. # Ob Eliud eine Pause gemacht hat! (only reading: deliberative question)
whether Eliud a break made has

The German facts support our analysis for the Greek exclamatives in Section 3 above in two crucial ways: (i) unambiguous exclamatives in German always feature embedded (i.e., verb-final) word order and (ii) the predicate that embeds the exclamative must indeed be part of an assertive speech act because otherwise the choice of *dass* ('that') remains unaccounted for. The German data thus complement the Greek data in a very nice and compelling way: while Greek demonstrates the

necessity for postulating a higher emotive predicate 'V-emotive' for selecting the emotive complementizer *pu* in exclamatives, the German observations make clear that, at the same time, the null predicate indeed is selecting assertiveness. Crucially, recall that Greek *pu* cannot appear in non-assertive contexts either; cf. example (22) above, repeated here for convenience, and the corresponding embedded structure (59b):

(59) a * Poso psilos **pu** ine o   Andreas?
          how tall   pu is the Andreas
          'How tall is Andreas?'
      b. * O Janis theli na   kseri   pu efije   o   Andreas.
          the John   wants SUBJ know.3SG pu left.3SG the Andreas
          '(Intended: 'John wants to know whether Andreas left.')

In sum, Greek morphosyntax distinguishes between assertive and non-assertive complementizers, but then further distinguishes between emotive and non-emotive assertive complementizers. German only makes the former distinction, but taking both data sets into account supports an analysis where exclamatives are nothing more than 'emotive assertions', i.e., a combination of being assertive and expressive at the same time.

Let us end this final section with a further observation about German exclamatives that indicates that exclamatives indeed *must* be assertive by looking at how exclamatives in German make use of modal particles—functional elements of the clause that are known to depend on relevant force/sentence-mood features. As already mentioned above (see [56]), otherwise identical structures like (60) can be disambiguated by modal particles in German:

(60) a. Wie schnell ist der   aber auch   ~~ist~~!   [only exclamative]
          how fast   is this.one PART PART   is
          'How fast he is!'
      b. Wie schnell ist der   denn/wohl ~~ist~~?   [only question]
          how fast   is this.one PART PART   is
          'How fast is he (I'm wondering)?'

Crucially now, the same exclamative particles can not only also occur in *dass*-exclamatives (61a) (as could maybe be expected), but also in declaratives (61b), turning the declarative into a declarative exclamation:

(61) a. Dass Eliud aber auch so   schnell ist!
          that Eliud PART PART so   fast   is
          'How surprising that Eliud is so fast!'
      b. Eliud ist   aber auch schnell!
          Eliud is   PART PART fast
          'Wow! Eliud is so fast!'

Note that these particles are completely ungrammatical in questions:

(62) * Was hat Eliud aber auch gemacht?
    what has Eliud PART PART made
    'What has Eliud done?'

As already discussed in Section 2, the literature generally postulated that declarative exclamations like (61b) feature assertive force. Accordingly, an approach that suggests itself here is that particles of the type illustrated above are fine in *wh*-exclamatives (60a) and *that*-exclamatives (61a) too because the exclamatives fall into one natural class with the declarative (61b): all of these utterances are 'emotive assertions'. The distribution of German particles is just an expected reflex following from this assumption. All of this is in line with our general approach (see above) where exclamative sentences are equivalents to an assertive declarative containing an emotive verb and its complement. With these final thoughts in mind, let us now turn to our general conclusion.

5. Conclusion

We have proposed here a new theory of exclamation as a manifestation of emotive attitude towards an extreme degree, and suggested a syntax-semantics of exclamatives that explains their intensity and emotive assertive content. Our analysis overall was motivated by the Greek, German, and English facts we examined in the paper, and a core data point we focused on were the structural similarities between complements of emotive verbs, *wh*-exclamatives, *that*-exclamatives, and declarative exclamations. Crucially, and *pace* the existing literature, we claim that it does not make sense to talk about exclamation as a speech act; rather, we argued, exclamation is an emotive *attitude*. The speech-act approaches will have difficulty capturing the structural and semantic similarities between emotive attitudes and different forms of exclamatives we pointed out in our work (word order, distribution of functional elements like complementizers and particles)—and, equally importantly, they are incapable of showing exactly what the illocutionary force might be. We saw that exclamation characterizes assertions, but also questions and imperatives; it is therefore not a distinct speech act, and in our analysis there is thus no special exclamation force. The framework we proposed here can be extended to capture a number of phenomena that fall under the 'exclamative', including 'mirative' structures; we hope that future research will undertake this task.

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