

D-Linking vs. degrees: Inflected and uninflected *welch* in exclamatives and rhetorical questions*

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1 Introduction

German has two types of *which*-phrases. Both types are formed with a *wh*-word that has the stem *welch* but one is inflected whereas the other one is uninflected. In the inflected type of *which*-phrase *welch* is inflected for number, case, and, in the singular, for gender. Depending on the particular form required it comes as *welcher*, *welchen*, *welchem*, *welches*, *welche*. In this paper I will use the abbreviation *welchE* to refer to the inflected type irrespective of the particular form. Uninflected *welch* only ever takes the form *welch*, and I will refer to it as *welch*. Uninflected *welch* can be followed by the indefinite determiner *ein* ('a'), inflected *welchE* cannot. Adjectival modifiers that occur with inflected *welchE* carry so-called weak inflection endings. Adjectival modifiers that occur with uninflected *welch* carry strong inflection endings. This is illustrated in (1). The pattern is the normal pattern for inflection in German noun phrases (cf. Olsen 1989, 1991a, b; Gallmann 1996; Müller 2004; Roehrs 2009).

- (1) a. *welch* (ein) *schönes* Haus
b. *welches* (*ein) *schöne* Haus
welch a nice house

Semantically, inflected *welchE* is the equivalent of English *which*, i.e. in a *which/welchE* question, given a set of entities that have the property specified by the complement of *which/welchE*, the speaker asks the addressee to pick out the entity or entities that make the proposition true. *WelchE* phrases are d-linked (Pesetsky 1987) just like English *which*-phrases. Uninflected *welch* might be compared to English *what a* as in *What a nice dress!*. *Welch* has been suggested to trigger the presupposition that the property denoted by its complement applies to a high degree (D'Avis 2001). Furthermore, *welch ein* has been suggested to have the same meaning as German *was für ein* ('what for a'; Gallmann 1997), which ask for kinds or properties (Beck 1996). The English equivalent of *was für ein* is *what* occurring with nouns as in *What shoe size are you?*

* Version Nov 2012. To appear in: Holden Härtl (ed.). *Interfaces of Morphology*. Berlin: Akademie.

In this paper I explore the distribution of *welch* and *welchE* in different types of speech acts. Uninflected *welch* has been claimed to occur only in exclamatives (Gallmann 1997; D'Avis 2001). D'Avis (2001: 128) discusses the examples in (2).¹ In (2a) the finite verb occurs in clause-final position, which marks this sentence unambiguously as an exclamative. In (2b) the finite verb occurs in second position (i.e. in C), which is compatible both with an interpretation as exclamative and as question. Nevertheless, the question interpretation is not available, see (2c).

- (2) a. [_{CP} Welch einen TOLLEN Mann [_{TP} die geheiratet hat!]]
 welch a fantastic man she married has
 b. [_{CP} Welch einen TOLLEN Mann [_C hat [_{TP} die geheiratet *t*_{hat}!]]]
 'What a fantastic man she has married!
 c. #Welch einen tollen Mann hat die geheiratet?
 Lit.: 'What a fantastic man did she marry?'

In general, the use of *welch* in questions is assumed to be dated, and even in exclamatives it has been claimed to be limited to formal registers (Gallmann 1997). Example (3) below might be taken to illustrate an exclamative in a formal register, (4) illustrates the question use of *welch* in literary work by Thomas Mann, i.e. predating 1945 (cited in Zifonun, Hoffmann & Strecker 1997).

- (3) Welch eine Freude und welch Harmonieempfinden kann eine lichtvolle
 welch a joy and welch feeling.of.harmony can a bright
 Gruppenmeditation auslösen!
 group.mediation trigger
 'What joy and what feeling of harmony elated group meditation can spark!

*From a webpage on 'Astrological information
 exchange on the quality of time in January and February 1999*

- (4) Welch Unglück sollte den Herrn betroffen haben, seitdem er mich ließ?
 welch calamity should the gentleman overcome have since he me left
 'What calamity should have overcome that gentleman since he left me?'

From Mann, Thomas: Joseph und seine Brüder (Joseph and his brothers).

Inflected *welchE* has been claimed not to be able to occur in exclamatives and to be restricted to questions. (4) is from Wiltschko (1997: 114). (4) is unacceptable to the extent that it is hard to assign a meaningful interpretation to it as is also reflected in the English translation.

¹ Small caps signal pitch accents.

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- (4) *Welcher Mann!
 which man
 'Which man!'

In this paper I will show that in contemporary Standard German *welch* is neither generally restricted to formal registers, nor is it restricted to exclamatives. *Welch* also occurs in rhetorical questions. Furthermore, it can occur in ordinary questions but there it is indeed restricted to a non-neutral register, which, however, is not necessarily formal. I will discuss the distribution of *welch* in these two types of questions in section 4. I will also show that *welchE* can occur in exclamatives but that it makes a different meaning contribution than *welch*. Therefore the two *which*-phrases are not interchangeable and they are acceptable in different types of *wh*-exclamatives and in different contexts. The discussion of the distribution of the two *which*-phrases in exclamatives, which I will present in section 3, will show that when looking at *wh*-exclamatives one needs to distinguish between clausal *wh*-exclamatives like those in (2), and what I will call *nominal wh-exclamatives* here. (4) is such a nominal *wh*-exclamative: it consists only of the *wh*-phrase and lacks a finite verb. We shall see that this distinction plays a role in the distribution of *welch* vs. *welchE*. The occurrence of *welchE* in nominal *wh*-exclamatives is much more restricted than in clausal *wh*-exclamatives. The reasons are mainly pragmatic. For the semantics of *welchE* I will argue that its overall distribution follows from its d-linking characteristics. For *welch* I propose that it is a degree expression that binds the degree variable of a gradable predicate and introduces a standard degree that needs to be exceeded. This analysis is inspired by earlier proposals for *welch* (Gallmann 1997, D'Avis 2001). Overall I will argue that the most parsimonious analysis of exclamatives in German is probably one that syntactically and semantically takes them to be questions (cf. D'Avis 2001, 2002; Abels 2004). Section 2 will give a general introduction to exclamatives and the issue of exclamative-specific *wh*-phrases. Before I turn to that, however, I will say a few words about the data used for the present investigation.

Some notes on the data

Exclamatives are expressive speech acts that typically are communicated in a context that triggers the causes a surprise. Judgements about the acceptability of expressive speech acts sometimes can be very subtle because a lot depends on the ability of the person that judges the acceptability, to imagine themselves in a particular situation that would provide the appropriate emotional context. We shall see plenty of illustration for this in section 3, where I will ask the reader to retrace subtle arguments about particular contexts. With respect to *welch* there is the additional difficulty that it has been described as stylistically marked – belonging to formal registers, or being dated (see above), which might make it less accessible to intuitions. Therefore, the present study uses corpus data as a starting point, where the structures I am interested in occur in context. This makes possible a more systematic investigation of contextual factors and issues of style or rhetoric. Furthermore, potential restrictions on *welch*-phrases to occur only in certain types of speech acts – or the lack of some alleged restrictions – are easier to uncover by the use of a corpus. The data found in the corpus were evaluated with native speaker intuitions, e.g. by deciding what particular speech act type was involved. Furthermore, they formed the basis for the formation of mini-

mal pairs in order to target more specific questions about the use of *welch* or *welchE*. In section 3, where I present the main analysis of the two types of *which* phrases, intuitions about minimal pairs will play an important role. Section 4, where I investigate speech act type restrictions will work primarily with corpus data.

The corpus used in the present study is a part of the German corpus of the *WaCky* project (*deWaC* with 1.7 billion tokens; see <http://wacky.sslmit.unibo.it/doku.php> for documentation). The *WaCky* project is an automatically collected web-crawled corpus for domains ending in *.de* that was POS-tagged and lemmatized (see Baroni et al. 2009). The part of the German corpus that was used for this research (*deWaC 1*) contains 268.849.871 tokens and was accessed via the corpus query processor (CQP) interface of the corpus linguistics department of the Humboldt-Universität zu Berlin (Anke Lüdeling). The limitation to only a part of the entire German *WaCky* corpus was due to practical reasons. For many issues addressed in this paper, every relevant occurrence in the corpus needed to be examined individually for context, text style, and speech act type. Therefore a limitation of the corpus size was desirable. Furthermore, since the aim of the corpus investigation was not a thorough quantitative investigation a more comprehensive survey was not necessary.

The queries in the corpus were conducted as follows. Clauses starting with *welch* or *welchE* and ending in an exclamation mark were extracted as candidate matrix exclamatives. Clauses starting with *welch* and ending in a question mark were extracted as candidate matrix questions. *WelchE* was not investigated in questions as the occurrence of *welchE* in questions is not debated. The tokens found this way were annotated individually for their 'real' speech act status as judged with native speaker intuitions (see section 4 for discussion). Clauses containing uninflected *welch* in embedded clauses were extracted as well but they were not used for the present investigation.

The set of tokens found this way was further restricted by the following criteria. With respect to the question of formal or dated style, data were annotated according to the text type they occurred in. Literary works predating 1945 were considered stylistically dated. Any text from the bible as well as sermon texts or texts discussing biblical passages or other religious works also counted as stylistically dated (unless they were from academic contexts). The reason is that such texts often adopt the style / register of the topic they discuss. Poetry, fairy tales, fantasy tales and the like, whose date of origin was not obvious, also were grouped in the same category. Any other text type was considered as potentially built on the basis of the competence grammar of a speaker of contemporary Standard German, and thus relevant for the present investigation. Passages written in dialects other than Standard High German were not included in the investigation.

Some tokens were excluded from the investigation for formal reasons: a few data contained some obvious misprint(s), including misplaced punctuation marks in the middle of a sentence, or missing punctuation marks at the end of a sentence – both of which led to a wrong segmentation of text units into sentences –, or the misprints were such that the sentence as a whole did not make sense. Furthermore, when clauses appeared several times in the corpus only one instance was considered. Even though a statistical investigation of the findings was not of interest in the present research, I report below the numbers of occurrences to give a rough illustration of the distribution of the data with respect to individual factors.

2 The semantics and pragmatics of exclamatives

Exclamations are sentences that can be used to express an expressive speech act which signals that the speaker finds a certain state-of-affairs surprising because it violates his or her expectations. Exclamations come in different forms. They can be expressed by declarative sentences or by a variety of other constructions, see (5) for some examples in English. For the non-declarative constructions it is debated whether they are exclamation-specific constructions, i.e. whether there is an exclamative sentence type (cf. Grimshaw 1979), or whether they have the same syntax and/or semantics as other, more 'basic' construction or sentence types. For instance, with respect to *wh*-exclamatives – in different languages – there is a debate as to whether they are derived from, or indeed are interrogatives (Gutiérrez-Rexach 1996; D'Avis 2001, 2002; Zanuttini & Portner 2003; Abels 2005; Roguska 2008), or e.g. free relatives (Rosengren 1997; Rett 2008; see D'Avis 2001 for convincing arguments that *wh*-exclamatives in German cannot be free relatives).

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|-----|--------------------------------------|----------------------------------|
| (5) | a. Wow, your apartment is big! | - declarative sentence |
| | b. What a big apartment you've got! | - <i>wh</i> -exclamative |
| | c. What a big apartment! | - nominal <i>wh</i> -exclamative |
| | d. The apartment you've got! | - nominal exclamative |
| | e. Wow, do YOU have a big apartment! | - polar exclamative |

The idea that *wh*-exclamatives might be derived from interrogatives has been fuelled by the observation that the two sentence types are formally similar in many languages. The most obvious similarity is the occurrence of a *wh*-element. *Wh*-exclamatives can be found e.g. in English, German, Italian (Zanuttini & Portner 2003), Hungarian (Lipták 2006), Icelandic (Jónsson 2010), Swedish (Delsing 2010), Catalan (Castroviejo-Miró 2006), or Japanese (Ono 2006). However, the set of *wh*-elements that occur in interrogatives in many languages does not seem to be the same as the set that can occur in exclamatives. Some languages allow only a subset of the interrogative *wh*-phrases in exclamatives. For instance, English only allows *how* and *what* (*a*) but not e.g. *who* or *when*. Icelandic also allows only *how* (= *hvernig*) and *what* (= *hvað*; see Jónsson 2010). Italian and Hungarian allow the entire set with the exception of *why* (Zanuttini & Portner 2003; Lipák 2006²). German allows all interrogative *wh*-words in exclamatives. This is illustrated in (6). Note that for a *why*-exclamative to be felicitous the main stress must fall on the *wh*-word (on the second syllable)³. Any other stress placement would result in a question reading or in unacceptability. In the other *wh*-exclamatives the main stress either falls on the pronominal subject, which must be realized as a strong pronoun, which is a demonstrative pronoun, or the main stress falls on another lexical element in the clause.

² Lipták (2006) reports inter-speaker-variability for *miért* ('why') in Hungarian.

³ The position of the stress on *warum* may vary. It is important that it is on the second syllable here.

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|--|---|
| <p>(6) <i>what</i>: Was der gegessen hat!
 what he.DEM eaten has
 'The stuff he ate!'</p> <p><i>how</i>: Wie lang der geblieben ist!
 how long he.DEM stayed is
 'How long he stayed!'</p> <p><i>where</i>: Wo der hingegangen ist!
 where he.DEM went.to is
 'The place he went to!'</p> <p><i>why</i>: WaRUM der gekommen ist!
 why he.DEM come is
 'The reason why he came!'</p> <p><i>which</i>: Welchen Ring der ausgesucht hat!
 what ring he.DEM chosen has
 'The ring that he has chosen!'</p> | <p><i>who</i>: Wen der eingeladen hat!
 who.ACC he.DEM invited has
 'The people he invited!'</p> <p><i>when</i>: Wann der gekommen ist!
 when he.DEM come is
 'At what time he came!'</p> <p><i>what</i> Was der für ein Haus hat!
 <i>for</i>: what he.DEM for a house has
 'What a house he's got!'</p> |
|--|---|

In many languages there are *wh*-elements that only seem to be allowed in exclamatives. For instance, in English [*what a ...*]_{DP} indicates that the clause it occurs in is an exclamative (e.g. Eliot 1971, 1974; Grimshaw 1979):

- (7) a. What a house he lives in! (Grimshaw 1979: 281)
 b. *What a house does he live in?

Similarly, Icelandic *hvíkkur* ('what a') seems to be exclamative-specific (Jónsson 2010), as is Italian *che* ('which') if followed by an adjective (Zanuttini & Portner 2003). With respect to uninflected *welch* in German we saw in the introductory section that it seems to be exclamative-specific (and I announced that I would show in section 4 that this is not true). The relevant example was example (2), repeated below for convenience:

- (8) a. [_{CP} Welch einen TOLLEN Mann [_{TP} die geheiratet hat!]]
 Welch a fantastic man she married has
 b. [_{CP} Welch einen TOLLEN Mann [_C hat [die geheiratet *t*_{hat!}]]]
 c. #Welch einen tollen Mann hat die geheiratet?

If exclamatives and interrogatives do not allow the same *wh*-phrases an account that assumes that exclamatives are, or are derived from interrogatives, needs to explain why there are exclamative-specific *wh*-phrases, and, conversely, why there are *wh*-phrases that can occur in interrogatives but not in exclamatives. With respect to the first question, D'Avis (2001), who argues that exclamatives in German syntactically and semantically are interrogatives, gives the following reason for the inappropriateness of cases like (2c). He assumes that *welch* is a degree phrase DegP that occurs in the specifier position of the DP it

occurs in (cf. Gallmann 1997). From there it takes scope over a gradable element in the NP complement. It comes with the presupposition that the gradable property (*toll* 'fantastic' in (8)) applies with a high degree. It is this presupposition that renders (8c) on the question interpretation infelicitous. (2c) asks to what degree the man that the woman married was fantastic and at the same time presupposes that that man was fantastic to a high degree. So it presupposes its answer. This is not compatible with the speaker ignorance normally associated with questions.⁴

The same reasoning applies to the restriction of so-called *intensifiers* to exclamatives: *very* in *how very*, or the corresponding modifiers in *how incredibly tall*, *how enormously hungry* are not felicitous in questions as the following English examples illustrate (e.g. Eliot 1974; Grimshaw 1979):

- (9) a. How very tall he is!
b. *How very tall is he?

(9) asks how tall *he* is and presupposes that he is *very* tall.

In section 3 we shall see that the semantics D'Avis (2001) suggests for *welch* matches the data from the corpus well. I will give a precise formal definition of *welch*, which will help us understand its specific meaning contribution, and which will set it apart from *welchE* but also from *was für*, which, as we saw in the introduction, has been argued to be synonymous with *welch*.

With respect to the second question, viz., why some languages do not allow the full set of interrogative *wh*-phrases in *wh*-exclamatives, we need to dwell a bit longer on the issue of degrees. Most examples that I have discussed in this section involve gradable predicates: *big*, *tall*, *fantastic* (*toll* in German). As a matter of fact, it has been claimed that exclamatives – as opposed to declaratives serving as exclamations – in general make direct reference to degrees.⁵ For instance, Castroviejo Miró (2006) suggests for Catalan that *wh*-exclamatives are special degree constructions. Rett (2008, 2011) suggests for English that when using an exclamative the speaker expresses that s/he expected a gradable property to be instantiated up to a particular degree, which is exceeded by the actual degree. Exclamations expressed by declaratives, in contrast, are not subject to such a degree restriction. This difference is illustrated in (10), adapted from Rett (2011: 430):

- (10) a. (Wow), John arrived early!
b. How early John arrived!

⁴ See Zanuttini & Portner (2003) for another account of exclamatives that works with the idea that exclamatives presuppose their content. See Rett (2008, 2011) for arguments against presuppositional accounts and see Abels (2010) for arguments against Rett's arguments.

⁵ D'Avis (2002) discusses degree and non-degree readings of exclamatives. I do not look at his proposal here because it deals with embedded exclamatives. Whether or not embedded exclamatives exist is a highly controversial issue (cf. e.g. Eliot 1974; Grimshaw 1979; Huddleston 1993; Abels 2005, Rett 2011).

(10a) is felicitous if the speaker expected that John would not arrive early and that John arrived early but not necessarily very early. For (10b) to be felicitous John must have arrived earlier than the expected degree of earliness.

Rett (2008, 2011) suggests that the degree restriction is a general characteristic of exclamatives cross-linguistically (although she focuses on English). She says that exclamatives are only acceptable with *wh*-phrases that range over degrees but not with *wh*-phrases that range over individuals or times etc. For English this seems to be correct. As we saw above, English *wh*-exclamatives only allow *how*, and *what a*, the latter receiving a degree interpretation (also see Saeboe 2010 for a proposal for the semantics of these two items). As for the semantics of the exclamative clause one can draw different conclusions from these observations. Rett (2008, 2011) suggests that exclamatives denote degree properties whereas exclamatory declaratives denote a proposition. The degree property is derived via the semantics of the *wh*-phrase ranging over degrees.⁶

Now, I showed above that German (contrary to some earlier claims) has no restrictions with respect to the kind of *wh*-phrase that can occur in an exclamative. We could explain this difference between English and German by assuming that in German, exclamatives are not degree properties but other semantic objects, e.g. sets of true propositions, like interrogatives, as proposed by D'Avis (2001, 2002) or Zanuttini & Portner (2003).⁷ The degree restriction – assuming that it holds for German – could be encoded in the speech act operator, or in some other operator in the clause. For instance, Zanuttini & Portner (2003) assume a special widening operator, which introduces scalarity. D'Avis (2001) is not explicit about the formal side of the semantics-pragmatics interface but he says that the true proposition – which reflects the state of affairs that the speaker is surprised at – and the expected proposition are ordered on a scale such that the true proposition is ordered at a distance from the expected proposition and that the size of distance reflects the strength of the deviation from the expected proposition.

I will assume here that *wh*-exclamatives in German denote sets of true propositions but I will leave open the question of how precisely the semantics-pragmatics interface works. For simplicity I will assume that there is a speech act operator that contributes the degree characteristic that has been observed for *wh*-exclamatives. I take this to be a more parsimonious approach than for instance the assumption that all interrogative *wh*-phrases in German have a sibling that ranges over degrees and therefore might occur in exclamatives. Thus, I propose that the *wh*-phrases that occur in interrogatives have the same semantics as those that occur in exclamatives. This has the nice consequence that we expect certain characteristics of *wh*-phrases, such as the d-linking characteristic of *which/welchE*-phrases, to have comparable effects in interrogatives and exclamatives. I will show in section 3 this is exactly what we find.

⁶ Rett's claim that exclamatives denote degree properties actually includes polar interrogatives and nominal interrogatives. Therefore she proposes that there must be a silent degree operator that occurs in these constructions.

⁷ Saeboe (2010) suggests for embedded exclamatives in English that the degree characteristic is part of the denotation of the *wh*-word but that the *wh*-exclamative itself just like interrogatives assigns to any world a true proposition.

The assumption that German exclamatives are (derived from) interrogatives whereas English exclamatives possibly are not also receives some indirect support from the syntax of exclamatives vs. interrogatives in English vs. German. In English interrogatives there is T-to-C movement whereas in exclamatives there is not:

- (11) a. [_{CP} How long [_{TP} this train journey could take]]!
 b. [_{CP} How long [_{C'} could [_{TP} this train journey *t_{could}* take]]]?
 c. *_{CP} How long [_{TP} this train journey could take]]?
 d. *_{CP} How long [_{C'} could [_{TP} this train journey *t_{could}* take]]]!

As already mentioned above, in German exclamatives there can be T-to-C movement or not. (12) illustrates with an example that is parallel to the English example above.

- (12) a. [_{CP} Wie lange [_{TP} diese Zugreise dauern könnte]]!
 how long this train.journey take could
 b. [_{CP} Wie lange [_{C'} könnte [_{TP} diese Zugreise dauern *t_{könnte}*]]]!

Note that most native speakers when asked about the preferred word order for *wh*-exclamatives in German would probably go for the variant without T-to-C movement. We will see below, though, that at least for *welch*-exclamatives this preference is not at all reflected in the corpus data. Considering that matrix interrogatives in German always have T-to-C movement (embedded interrogatives do not) the assumption that German exclamatives might be closer to interrogatives than their English counterparts is at least not implausible. With this much in hand let us now turn to *welch* and *welchE* in German exclamatives.

3 *Welch* and *welchE* in exclamatives

I begin this section with a rough description of the distribution of *welch/welchE*-exclamatives that we find in the corpus. Recall that the corpus query was for sentences with clause-initial *welch/welchE* ending in an exclamation mark.

3.1 Brief overview over the data

There are around 290 occurrences of stylistically unmarked sentences with *welch* (1.12 per million words) in the corpus. 90% of these are nominal *wh*-exclamatives, i.e. they just consist of a *wh*-phrase and do not contain a finite verb. An illustration is given in (13). Some of these occurrences ($n = 20$) contain formulaic expressions like *Welch ein Glück!* ('what luck') that are followed by a complement sentence, see (14).

- (13) *Welch ein Stress für den Marder!*
 welch a stress for the marten
 'How stressful for the marten!'

- (14) Welch ein Glück, dass wir Sternschnuppen nicht fangen können!
 welch a luck that we shooting.stars not catch can.
 'How lucky we are that we can't catch shooting stars!'

An example of a clausal *wh*-exclamative from the corpus is the following:

- (15) *Context: Speaker points out that handicapped people often do not feel accepted by their parents.*
 Welch katastrophale Auswirkungen das auf das Selbstbild dieser
 welch disastrous effects that on the self-perception these.GEN
 Menschen haben muss!
 people have must
 'What disastrous effects this must have on the self-perception of these people!'
http://www.familienhandbuch.de/cmain/f_Aktuelles/a_Behinderung/s_499.html

Stylistically marked texts yield another 140 occurrences of *welch*. Interestingly, only 60% of these are nominal (as opposed to 90% in stylistically unmarked texts, see above), which seems to suggest that the use of *welch* in contemporary Standard German is receding to the nominal domain. In what follows I will not report on stylistically marked texts anymore.

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2 out of the 29 clausal *wh*-exclamatives have T-to-C movement. This is quite surprising considering that verb-final exclamatives often are considered more prototypical exclamatives (see previous section).

For reasons of space I did not include *wh*-exclamatives with *welch ein* in my investigation. I give some descriptive statistics here but will not have to say more about them in this paper. In 65% of the *welch*-exclamatives, *welch* is followed by the determiner *ein*. The other occurrences are combinations of *welch* with a bare noun (9%), or *welch* with at least one prenominal modifier and a noun (26%). Curiously, none of the *welch ein* occurrences contains a prenominal modifier.⁸ For the time being I take *ein* in *welch ein* to be a spurious determiner and leave this issue for future research.

As for *welchE*-exclamatives, the number of occurrences is much lower than for *welch*-exclamatives: 47 vs. 290. 72% of them are nominal. 23% involve prenominal modifiers. These numbers confirm the assumption made above on the basis of intuitions that *welchE* can occur in exclamatives. We also see, however, that *welch* seems to be much more frequent than *welchE*. I suggest that this has two reasons. One is that *welch* makes reference to degrees, which is a hallmark of exclamatives (see above). The other is that *welchE*-phrases are d-linked, which imposes restrictions on the discourse context that will rarely be met. In what follows I argue in detail for both of these assumptions.

⁸ A quick search for *Was für ein* in clause-initial position (no control of tokens for style, typos etc.), yielded 630 occurrences. 27% of these occurrences were followed by a prenominal modifier. See section 3 for a short comment on *was für ein*.

3.2 Degrees: *Welch*

All the examples presented in the previous subsection express that some property applies to a high degree. (13) expresses that the situation was very stressful for a contextually salient or a generic marten, (14) expresses that it is very lucky that we cannot catch shooting stars, and (15) expresses that the effects of parental rejection on handicapped people would be very disastrous. The question we need to ask here is whether these degree interpretations are due to the presence of *welch* or whether they are a consequence of these sentences being *wh*-exclamatives, which generally express surprise at a degree.

Observe that at least in (15) above, and probably also in (13) and (14) *welch (ein)* can be replaced by a form of *welchE* without a reduction in acceptability,⁹ albeit with a slight change in meaning (which I will discuss below).¹⁰ Importantly, there are cases where *welch* cannot be felicitously substituted by *welchE* at all. In (16) below *welch* occurs in a *nominal wh-exclamative* with a modifying adjective. *Welch* seems to have the function of a degree modifier, i.e. the sentence expresses that the mistake was very serious indeed. If *welch* is replaced by *welchE*, as illustrated in (16.B'), this meaning is no longer available, and the exclamative is clearly degraded.

(16) *From a travel report:*

- A: Mit gefüllten Vorräten strebten wir nun zum Rimet-Kloster. Uns auf die RV-Autokarte verlassend, wollten wir auf einer Nebenstraße quer durchs Gebirge abkürzen. *With plenty of provisions we were now aiming for the Rimet Monastery. Relying on the RV road map we decided to take a shortcut on a byroad across the mountains.*
- B: Welch schwerer Irrtum! B': ^{??}Welcher schwere Irrtum!
 welch serious mistake welch.MASC.SING serious mistake
 'What a serious mistake!'

There are many examples like (16.A-B) in the corpus, i.e. examples where the original corpus token with *welch* in a nominal *wh*-exclamative cannot be replaced by a version with *welchE* because that would lead to an unacceptable structure. What they all have in common is that the exclamative expresses that the property denoted by the gradable adjective applies to a very high degree. It seems that this meaning cannot be expressed with inflected *welchE*.

Let us assume that nominal *wh*-exclamatives are elliptic copula sentences.¹¹ So (16.B) essentially correspond to (17). There is a salient entity referred to by *das* ('that', 'it'), and that entity is assigned a property. Thus (17) is essentially a predicational copula sentence.

- (17) Welch schwerer Irrtum das war!
 welch serious mistake that was!
 'What a serious mistake this was!'

⁹ Recall that this requires an adaptation of the inflection on the adjective.

¹⁰ (15) is different from the other two examples. I will say more about this at the end of this section.

¹¹ They could also be fragments, if we take these to be instances of semantic ellipsis (cf. Stainton 2006, and especially Merchant 2010). As far as I can see nothing hinges on this choice.

Let us further assume that *welch* is indeed a degree operator, which combines with gradable properties, and existentially binds their degree variable such that there is a degree that applies to this property which is higher than the standard degree for that property. I assume that *welch* directly combines with the gradable property, and that there is no positive morpheme 'between' the property and *welch*. The meaning contribution of the positive morpheme in the case of gradable properties is usually taken to be that the degree is equal to or exceeds the standard, i.e. it relates the degree argument of the gradable property to an appropriate standard of comparison (cf. Cresswell 1977; Stechow 1984; Bierwisch 1989; Kennedy 1999). I suggest that this meaning contribution is part of the meaning of *welch* with the difference that the degree cannot be equal to but must exceed the standard by a significant amount, see (18).

$$(18) \llbracket \text{welch} \rrbracket = \lambda g_{\langle d,t \rangle} \exists d [g(d) \wedge d > s_w]$$

The denotation of (17) is derived in (19). Simplifying somewhat, I assume that *Irrtum* ('mistake') is a gradable noun that allows a degree reading.¹² For mistakes we can assume that it is the seriousness e.g. in terms of consequences, that is the scale at issue. Therefore I assume that the adjective *schwer* ('serious') in this example modifies the degree of the noun rather than contributing its own scale. I assume that *serious* in the present context is similar to *very*, it increases the degree of seriousness of the mistake by a certain amount *m*. In (19) this is realized as subtraction from the degree variable *d*. The contribution of *welch* is that the degree of seriousness of the mistake is required to be above the standard degree for seriousness of mistakes (plus the additional measure *m* contributed by the modifying adjective in the phrase). I am assuming here that the *welch*-DP, which occurs in the specifier of

¹² *Schwerer Irrtum* ('serious mistake', lit. 'grave error') patterns in some respects with gradable nouns that are modified by a size adjective. For instance, the latter can receive a non-size degree reading with the adjective in attributive position but not in predicative position, see (i) (Morzycki 2009). *Schwerer Irrtum* is only possible with an attributive adjective, see (ii):

- (i) a. that big idiot (= the degree of idiocy in that person is high)
 b. that idiot is big (≠ the degree of idiocy in that person is high)
- (ii) a. dieser schwere Irrtum
 this grave error
 b. *dieser Irrtum ist schwer
 this error is grave

On the other hand, *schwerer Irrtum* is not restricted to 'large' measures the way size degree readings are:

- (iii) %that small idiot (≠ the degree of idiocy in that person is low)
- (iv) dieser leichte Irrtum
 this light error

Morzycki discusses cases with size adjectives which also show a mixed pattern as 'significance' readings. Since these are not well-understood I will just assume a degree reading here. Nothing hinges on this choice.

CP in overt syntax is partially reconstructed at Logical Form: the restrictor of *welch* is interpreted in situ. *Welch* itself leaves a trace of type d . The trace is lambda-bound via lambda-abstraction just below moved *welch*. The denotation of the copula captures the idea that we are dealing with a predicational copula sentence here.

- (19) Welch schwerer Irrtum das war!
 welch serious mistake that was
 'What a serious mistake!'

$$\begin{aligned}
 \llbracket \text{mistake} \rrbracket &= \lambda d \lambda x [\text{mistake}_w(d)(x)] \\
 \llbracket \text{serious} \rrbracket &= \lambda g_{\langle d, \langle e, t \rangle \rangle} \lambda d \lambda x [g(d + m)(x)], \text{ where } m \text{ is a measure unit on the} \\
 &\quad \text{scale for } g \text{ that is substantially} \\
 &\quad \text{greater than } 0 \\
 \llbracket \text{serious mistake} \rrbracket &= \lambda d \lambda x [\text{mistake}_w(d + m)(x)] \\
 \llbracket t1_d \text{ serious mistake} \rrbracket &= \lambda x [\text{mistake}_w(d_I + m)(x)] \\
 \llbracket \text{is} \rrbracket &= \lambda P \lambda x [P_w(x)] \\
 \llbracket t1_d \text{ serious mistake is} \rrbracket &= \lambda x [\text{mistake}_w(d_I + m)(x)] \\
 \llbracket \text{that } t1_d \text{ serious mistake is} \rrbracket &= [\text{mistake}_w(d_I + m)(\lambda x. S_{\text{ali}} E_{\text{nt}}(x))] \\
 \llbracket \text{Q that } t1_d \text{ serious mistake is} \rrbracket &= [p(w) \wedge p = \lambda w' [\text{mistake}_w(d_I + m)(\lambda x. S_{\text{ali}} E_{\text{nt}}(x))]]^{13} \\
 \llbracket \text{I Q that } t1_d \text{ serious mistake is} \rrbracket &= \lambda d_I [p(w) \wedge p = \lambda w' [\text{mistake}_w(d_I + m)(\lambda x. S_{\text{ali}} E_{\text{nt}}(x))]] \\
 \llbracket \text{welch I Q that } t1_d \text{ serious mistake is} \rrbracket &= \lambda p \exists d [p(w) \\
 &\quad \wedge p = \lambda w' [\text{mistake}_w(d + m)(\lambda x. S_{\text{ali}} E_{\text{nt}}(x))] \wedge d > s_w]
 \end{aligned}$$

It should be noted that not all nouns in *welch*-exclamatives are gradable. Here is an example with a non-gradable noun and a gradable adjective:

- (20) Welch kindische Polemik!
 welch childish polemic
 'What childish polemic!'

In (20) the degree argument that *welch* binds is delivered by the adjective. Yet there need not be any gradable expression at all. Here is an example from the corpus:

¹³ I am following Beck's (1996) abbreviated notation with lambda-abstraction at the CP level here so that $\llbracket [Q] \rrbracket = \lambda q [p(w) \wedge p = q]$, rather than $\lambda q \lambda p [p(w) \wedge p = q]$. This saves us type adjustment of the *wh*-phrase.

- (21) So stapfen wir fast nackt unter unseren Regenumhängen in das Café. Das Gefühl von eiskaltem feuchtem Nylonstoff auf nackter Haut werde ich nicht so schnell vergessen, einfach nur pervers. Zum Glück habe ich als einzige ein paar Schilling eingesteckt, es dürfte für 4 Getränke reichen. *Half-naked under our rain capes we trudge into the café. I won't forget the feel of ice-cold moist nylon on my naked skin. Wicked. Luckily, I've got some shillings on me. I'm the only one. It should be enough for four drinks.*

Welch Auftritt im Café!
 welch entrance in.the café
 'What an entrance we had in the café!'

Wir lassen notgedrungen unsere Umhänge an, unten schauen nasse haarige Beine in Badeschlappen oder Gummistiefeln raus, oben sind es die nassen verwuschelten Köpfe... *We're forced to leave our capes on, at the bottom wet hairy legs with feet in shower sandals or wellingtons are showing, at the top wet tousled heads...* From the explorer magazine <http://www.explorermagazin.de/landck98/landeck.htm>

I suggest that in cases like this there is a silent adjective that introduces a degree variable which later can be bound by *welch* (cf. Castroviejo Miró 2006 for a similar suggestion for exclamatives in Catalan, also cf. Rett 2011)¹⁴. The scale that is relevant here is one of unusualness or remarkableness.

There is a piece of evidence in favour of the degree analysis of *welch* which relates to a close relative of *welch*: *was für* (lit. 'what for', corresponding to 'what' or 'what kind of' in prenominal position). In the introduction I mentioned that *welch (ein)* often is thought to be synonymous with *was für*, see e.g. Gallmann (1997), Leu (2008). And indeed, if one replaces *welch (ein)* by *was für (ein)* the result usually is felicitous. I verified this for many of the corpus data, (22) illustrates:

- (22) Was für ein schwerer Irrtum!
 what for a serious mistake
 'What a serious mistake!'

Nevertheless, there are some interesting differences that suggest that *welch* has a different semantics from *was für*. (23) illustrates that *was für* can combine with numerals whereas *welch* cannot.

¹⁴ With respect to an analysis of English *what a*, Saeboe (2010) argues against the presence of a silent adjective. He suggests that the covert adjective would have to be uniquely determined by the noun and thus would not add information so it is more parsimonious to assume that nouns in general are measure functions that combine with a positive to yield an individual property. I am not sure, however, that the degree and the scale associated with the degree are indeed determined by the noun. The choice of scale can be rather flexible, depending on the context. For an entrance in a café, for instance, the scale can be one of degrees of glamour, or e.g. ridicule.

-
- (23) a. Welch (*zwei) (ungeheure) Missverständnisse!
 welch two tremendous misunderstandings
 b. Was für (zwei) (ungeheure) Missverständnisse!
 'What (tremendous) misunderstandings (these two cases were)!'

With the analysis of *welch* that I suggested it is expected that (23a) is not felicitous. *Welch* needs to combine with a degree property whose argument it binds. In (23a), that argument is already bound by the positive morpheme that we must assume is present: the numeral cannot combine with a degree property but only with an individual property. Hence, the positive morpheme binds the degree variable of *enormous misunderstandings* and delivers an individual property. This is the right input for *was für* later in the derivation but not for *welch*. I take this to be further evidence for the analysis of *welch* as a degree operator. The above data also suggest that *was für* is different from *welch*. I assume that it asks for properties (Beck 1999; Leu 2008) or kinds (Beck 1999).

To sum up so far, with the above semantics of *welch* we may assume that in *welch*-exclamatives the degree at which the speaker expresses surprise is a degree located above the standard degree on a scale for a particular property that a particular entity has. Let us now turn to inflected *welchE*.

3.3 D-linking: *welchE*

I assume that *welchE* is a determiner that does not combine with degree properties. *WelchE* is a generalized quantifier that combines with individual properties. Furthermore I assume with much previous literature that *welchE*-phrases are d-linked. I propose that this is independent of whether a *welchE*-phrase occurs in an interrogative or in an exclamative. *Welch*-phrases, in contrast, I take to be not d-linked. D-linking is a concept that was first introduced by Kuroda (1968), and that was elaborated on under the term *d-linking* by Pesetsky (1987). For questions with d-linked phrases it is assumed that the answer to the question is 'supposed to be drawn from a set of individuals previously introduced into the discourse, or ... part of the "common ground" shared by speaker and hearer' (Pesetsky 2000:16). Comorosvki (1996) suggests that *which* is like an inherently partitive determiner, where the common noun CN that follows it denotes a given subset of Ns in the model. *Which*-phrases can be used felicitously if the interlocutors partition the set that *which* takes as an argument in the same way. We shall see further below that in exclamatives there actually seems to be a difference between ordinary *welchE*-phrases and overtly partitive *welchE*-phrases (see the discussion around example (31)).

If we take exclamatives to share the syntax and semantics of interrogatives, and if we assume that the *wh*-words in both constructions are the same we expect d-linking to play a role in exclamatives. (24) is the clausal variant of the nominal *wh*-exclamative in (16.B). The translation for (24) reflects the interpretation of the *welchE* phrase as d-linked.

- (24) ??Welcher schwere Irrtum das war!
 which.MASC.SING serious mistake that was
 lit.: 'Which serious mistake that was!'

Now, if we consider what is intuitively wrong with (24) we find that – if anything at all – it seems to express that out of a set of serious mistakes the speaker is surprised at a particular serious mistake. So in the case of *welchE*, the scale that the speaker makes reference to here is not one of degrees of seriousness of a mistake but a scale of different serious mistakes, which might be ordered according to a totally different criterion, and thus on a different scale, such as a scale of frequency of occurrence. There might be contexts where such a scale is contextually supported, and we shall see below that one can accommodate such contexts for other sentence structures than copula sentences to some extent. In the current example, however, the context does not support such a scale.

Note that due to *welchE* singling out individuals the copula sentence is a specificational rather than a predicative sentence, as it was in the case of *welch*. It picks out one referent among a set of scalar alternatives and expresses the speaker's surprise at the fact that this referent is the one that is identical to the salient referent. If we look at other specificational copula sentences that prima facie should be felicitous as exclamatives we find that they are just as infelicitous as *welchE*-sentences. This is illustrated in (25) and (26). Non-copula *wh*-exclamatives with a form of *who* are fine in German, see (25b), whereas (specificational) copula *wh*-exclamatives with *who* are not, see (26b). (25a) and (26b) show that the corresponding questions are felicitous.

- (25) a. Wer ist heute gekommen? b. Wer heute gekommen ist!
 who is today come who today come is
 'Who came today?' 'The person/people that came today!'
- (26) a. Wer ist der Sportlehrer? b. *Wer der Sportlehrer ist!
 who is the sports.teacher who the sports.teacher is
 'Who is the sports teacher?' 'The person that is the sports teacher!'

On the basis of these observations I suggest that *welche* has the generalized quantifier denotation in **Fehler! Verweisquelle konnte nicht gefunden werden.**) and that the denotation of the specificational copula sentence in (24) is derived as in 0). Note that there is a silent morpheme [pos] here that binds the degree argument of the gradable adjective. Further note that in contrast to the *welch*-phrase the *welchE*-phrase is not predicated of the salient individual. Rather, the copula marks that the two entities are identical. Another difference with the *welch*-case is that there is no reconstruction here.

$$(27) \llbracket \textit{welchE} \rrbracket = \lambda P \lambda Q \exists x [P_w(x) \wedge Q_w(x)]$$

- (28) ??Welcher schwere Irrtum das war!
 which.MASC.SING serious mistake that was
 lit.: 'Which serious mistake that was!'

[[serious mistake]]	= $\lambda d \lambda x [\text{mistake}_w(d + m)(x)]$
[[pos]]	= $\lambda g_{\langle d, \langle e, t \rangle \rangle} \lambda x \exists d [g(d)(x) \wedge d \geq s_w]$
[[pos serious mistake]]	= $\lambda x \exists d [\text{mistake}_w(d + m)(x) \wedge d \geq s_w]$
[[<i>welchE</i> pos serious mistake]]	= $\lambda Q \exists x [\exists d [\text{mistake}_w(d + m)(x) \wedge d \geq s_w] \wedge Q_w(x)]$
[[t1 _e]]	= x_I
[[is _{spec}]]	= $\lambda x \lambda y [y = x]$
[[t1 _e is _{spec}]]	= $\lambda y [y = x_I]$
[[that t1 _e is]]	= $[\text{tx}.S_{\text{ali}}E_{\text{nt}}(x) = x_I]$
[[Q that t1 _e is]]	= $[p(w) \wedge p = \lambda w' [\text{tx}.S_{\text{ali}}E_{\text{nt}}(x) = x_I]]$
[[1 Q that t1 _e is]]	= $\lambda x_I [p(w) \wedge p = \lambda w' [\text{tx}.S_{\text{ali}}E_{\text{nt}}(x) = x_I]]$
[[<i>welcheE</i> pos serious mistake 1 Q that t1 _e is]]	= $\lambda p [\exists x [\exists d [\text{mistake}_w(d + m)(x) \wedge d \geq s_w] \wedge p(w) \wedge p = \lambda w' [\text{tx}'.S_{\text{ali}}E_{\text{nt}}(x') = x]]]$

Thus, whereas *welch* ranges over degrees *welchE* ranges over individuals. This has different consequences for the use of the set of propositions denoted by the respective sentence as exclamative. If we assume that exclamatives make use of scalar alternatives (see above), we may assume that the alternatives introduced by the *wh*-phrase seem to be first-choice candidates for scalar alternatives.¹⁵ Since uninflected *welch* is a degree function that combines with gradable properties the scalar alternatives are provided as part of the semantics of the exclamative. In exclamatives with *welchE*, in contrast, a scale has to be accommodated: individuals are not normally ordered along a scale. The success of accommodation is context-dependent. In the example we discussed above, there was no scale that suggested itself for the ordering of the set of individuals provided by the restrictor of the *welchE*-phrase.

That it is indeed the restriction on the set of individuals that plays a role in the accommodation process is supported by a variant of the above example. (27) illustrates that it is felicitous both with *welch* and with *welchE* if there is no modifying adjective.

- | | | | | | |
|---------|-------------------|---------|----|-------------------|---------|
| (27) a. | Welch | Irrtum! | b. | Welcher | Irrtum! |
| | welch | mistake | | welch.MASC.SING | mistake |
| | 'What a mistake!' | | | 'What a mistake!' | |

There is a subtle semantic difference between (27a) and (27b). I suggest that this difference is due to the quantification over degrees vs. individuals. Now, as I said (27b) is much better than 0). I suggest that this is because it is easier to accommodate a scale on which mistakes can be ordered than it is to accommodate a scale on which serious mistakes can be ordered. As a matter of fact, the scale on which we order mistakes can be one of seriousness, but it is hard to come up with a plausible context where a particular serious mistake would stand out from other serious mistakes. Without the restriction to seriousness the choice of scale is wider. Example (21) from above (*What an entrance we had in the café!*) also supports the role of the restriction. In (21) there is a post-nominal modifier (*in the café*). *Welch* cannot be

¹⁵ I am abstracting away from focus here but see example (30) for a case where there are also focus-induced alternatives.

replaced by *welchE* in this example. Leaving out the modifier, however, results in an acceptable *welchE*-exclamative.

So far the data seem to pattern according to the proposed analysis. However, there are some data that *prima facie* are problematic. On the basis of example (4) in the introduction, which is repeated below as (28), Wiltschko (1999) claims that inflected *welchE* cannot occur in exclamatives. We already know that this is false. Still, the judgement in (28) seems sound. So why is (28) not acceptable whereas (27b), which seems completely parallel, is fine? We should note here that the variant with uninflected *welch* is quite good (although the variant with *was für* might be preferred): when uttering *Welch Mann!* the speaker expresses his/her surprise at, say, the degree of manliness in a person, or some other easy-to-accommodate scale, depending on the context.

- (28) *Welcher Mann!
 which man
 Intended: 'What a man!'

Now, (28) is not a single odd-ball. Other expressions that are used to refer to humans in a non-expressive way do not seem to be able to combine with *welchE* either: **Welcher Junge!* ('boy'), **Welcher Bürgermeister!* ('mayor'), **Welcher Polizist!* ('policeman') etc. In the corpus there are no instances of *welchE* with human referents, except with expressive pejorative descriptions like *Lumpenpack* ('riffraff'). This reminds us of the *who*-data in (25) and (26) above, where we found that *wh*-exclamatives in the form of specificational copula sentences are impossible if the *wh*-word is *who*. Upon closer scrutiny it turns out that it is not just human referents with a non-expressive description that are problematic. Of the 47 *welche*-exclamatives in the corpus none has a *welchE*-restrictor that is a set of concrete entities, as in 'tangible objects in the real world'. And indeed exclamatives with inanimate concrete entities such as **Welches Buch!* ('book') or **Welcher Tisch!* ('table') are distinctly odd, too.

Interestingly, if we place *welchE*-phrases with the above type of restrictor in a clausal *wh*-exclamative the result seems to be quite acceptable:

- (29) Welches Buch der gelesen hat!
 which book he.DEM read has
 'The book he read!'

This suggests that the acceptability judgements really depend on the availability of an easy-to-accommodate context. In (29) it is quite easy to accommodate a context where one out of a set of books was unexpected to be read by the referent of *der* ('he') – say, because it is the kind of book the speaker him- or herself would never read. This is different from expressing surprise at the identity of entities in the nominal/specificational copula-*wh*-exclamatives. As a matter of fact, even for the *welchE*-phrase in example (28) above, which was particularly bad, we find that it can be felicitous in a clausal exclamative. In (30) we have a juxtaposition of two men and their respective roles in relation to a woman. The speaker is surprised at the allocation of roles.

-
- (30) Welchen Mann sie am Ende geHEiratet hat
 which man she at.the end married has
 und welchen Mann sie als LIEBhaber genommen hat!
 and which man she as lover taken has
 Roughly: 'That she married THAT man, and took THAT man as lover!'

Note that this example also shows that exclamatives are not information-structurally inert as is sometimes assumed (cf. Altmann 1993). The accents here indicate the focus in each of the two sentences, and they are the respective main accents, i.e. the so-called *exclamative accents*. The exclamative accents could not be anywhere else in this example.

Another data point I would like to discuss in this section on *welchE* are partitive *wh*-phrases. I mentioned above that d-linking sometimes is seen as a function of partitivity (Comorovski 1996). For d-linked phrases speaker and hearer are able to partition the set of individuals into the same parts. Now, we observed above that *welchE*-phrases in exclamatives usually deteriorate when they are modified by an adjective or a post-nominal modifier. I suggested that this is due to the additional restriction of the set of individuals, which tends to lead to the difficulty that no scale can be established for the individuals in the set. Example (31) below illustrates that a clausal *wh*-exclamative with a partitive *wh*-phrase can be acceptable even if an exclamative with an equivalent non-partitive *wh*-phrase is not.

- (31) a. Welchen Hausmeister der eingestellt hat!
 b. ??Welchen faulen Hausmeister der eingestellt hat!
 c. Welchen von den faulen Hausmeistern der eingestellt hat!
 which of the lazy janitor(s) he.DEM hired has
 a.: 'Of all the janitors, he hired that one!'
 b. Lit.: 'Which janitor he hired!'
 c.. 'Of all the lazy janitors, he hired THAT one!'

These data suggest that the overt marking of partitivity has an effect beyond d-linking. Intuitively, the difference between (31b) and (31c) is that (c) refers to a particular set of lazy janitors, whereas (b) refers to lazy janitors in general. The contextual restriction is made explicit in the partitive so it is easier to locate the use of the exclamative in a real situation (i.e. to accommodate the context).

Let us finally turn to a class of *wh*-exclamatives that do not fit the described generalization. One such case is example (15) from the very beginning of this section, which I repeat below as (32) for convenience:

- (32) Welch katastrophale Auswirkungen das auf das Selbstbild dieser
 welch disastrous effects that on the self-perception these.GEN
 Menschen haben muss!
 people have must
 'What disastrous effects this must have on the self-perception of these people!'

When I introduced this example I said that *welch* can be replaced by *welchE* here. Observe that (32) contains a prenominal modifier in its restrictor so we should expect it to be quite degraded. On the other hand, we are not dealing with a nominal *wh*-exclamative here. Also note, however, that there is one further characteristic of (32) which might produce the greater acceptability: the *wh*-phrase is a plural phrase. It might well be the case that this saves this particular example. However, whether this is a semantic effect or a formal effect is not so clear. Let me explain what I mean by this.

I conducted a corpus search for inflected *welchE* in exclamatives followed by an adjective, i.e. cases like (16.B') (^{??}*Welcher schwere Irrtum!* 'Which serious error!'). There is a small number of such cases in the corpus ($n = 6$), and they do not all involve plural. According to elicited judgements, they are acceptable and not some performance errors. Here is an example:

- (33) In diesem Moment erwachte in ihm der Wunsch, so erklärt es Freud, die dreibeinige Gangart zu überspringen und in die einbeinige Gangart des Ruhmes zu wechseln. Statt der sexuellen Neugierde nachzugeben, die wissenschaftliche Neugierde auf das Rätsel der Sexualität zu richten. Welche Verstrickung! *Freud says that at that moment the wish arose in him to skip the three-legged way of walking and to move on to the one-legged gait of fame. Instead of giving in to sexual curiosity, directing scientific curiosity towards the mystery of sexuality. What a tangle!*

Welche rätselhafte Verklammerung von Kindlichkeit und reifer Wissenschaft!
 which mysterious entanglement of childlikeness and mature science!
 'What a mysterious entanglement of childlikeness and mature science!'

Und doch muss es für den Knaben ein schwerer Entschluss gewesen sein ... *And yet, it must have been a hard decision for the boy...* From *Berliner Blätter für Psychoanalyse und Psychotherapie* (Berlin Gazette for Psychoanalysis and Psychotherapy).

An investigation of the semantic and pragmatic characteristics of these corpus examples did not yield a straightforward generalization. However, there is a morphological feature they share: all of these cases involve singular feminine nouns or plural nouns. The suffix on *welchE* in all these cases is the one that phonetically is the least salient: [ə] vs. [ʊ]/[ən]/[əm]/[əs]. Considering that the *welch* is receding we might speculate that *welchE* is taking on the semantics of *welch* and that this transition starts with the form that phonetically is least different from *welch*. So this semantically arbitrary (at least for the singular) but formally probably motivated difference might be a consequence of the *welch-welchE* paradigms being in flux. This needs closer scrutiny.

4 *Welch* in questions

In this section I will show that uninflected *welch* can occur in other speech acts than exclamations. Thus, *welch* is not exclamative-specific. We shall see that the degree analysis that I developed in the previous sections can be fruitfully applied to non-exclamative uses of *welch*. One instance of this are 'positive' rhetorical questions. *Welch* also occurs in 'negative'

rhetorical question. The analysis of these might be less straightforward but I will sketch a possibility. The last type of speech act where *welch* occurs is a subgroup of ordinary questions. These questions involve a register shift, and I call them 'mystery' questions here for reasons that will become clear below.

To investigate in what speech acts other than exclamations uninflected *welch* can occur I extracted sentences with *welch* from the corpus that end in a question mark. Question marks do not usually mark an exclamation. Ideally, the investigation should also have included embedded clauses with *welch*. There are many of them in the corpus, and clauses with *welch* do seem to get embedded under question predicates. However, a detailed investigation of embedded *welch* has to await another occasion, especially since it is highly controversial whether or not exclamatives can be embedded, see footnote 5. As for matrix sentences ending in a question mark, there are 20 such sentences in stylistically unmarked texts. 15 of them are rhetorical questions, the remainder are mystery questions.

4.1 Rhetorical questions

When a speaker asks a rhetorical question s/he does not expect an answer. Rather s/he gives the answer him/herself. For instance, by posing the question in (34a), the speaker really expresses (34b). This has led to the assumption that rhetorical questions have the illocutionary force of negative assertions. In the case of a *wh*-question this means that the set of true answers is empty:

- (34) a. Who lifted a finger when Pete was in trouble?
 b. Nobody lifted a finger when Pete was in trouble.

Rhetorical questions often come with negative polarity items like *lift a finger* in (34), or *ever* (cf. Krifka 1995; Han 2002). This has motivated analyses according to which rhetorical questions are *semantically* equivalent to negative statements, which would explain how the NPIs get licensed (Sadock 1971; Progovac 1993; Han 2002). More recently, however, Caponigro & Sprouse (2007) have highlighted the fact that the conception of rhetorical questions as *negative* assertions is too limited. This is illustrated in (35) from Caponigro & Sprouse (2007):

- (35) You should stop saying that Luca didn't like the party last night. After all, who was the only one that was still dancing at 3am?
 = Luca was the only one that was still dancing at 3 am.

So the idea that rhetorical questions semantically are negative statements is problematic. Caponigro & Sprouse (2007) suggest that a rhetorical question is a question whose answer is mutual shared knowledge of speaker and hearer, i.e. both speaker and hearer know the answer and they know that the other knows the answer as well.¹⁶ This is similar to exclamatives whose truth is often taken to be presupposed (see section 2). In what follows I will refer to rhetorical questions like (34), which express a negative assertion, as *negative-*

¹⁶ But see Gutierrez-Rechach (1998) for an argument that mutual knowledge might not be required.

answer RQs, and to questions like (35), which express a positive assertion, as *positive-answer RQs*.

Since we are looking at a potential restriction of the occurrence of *welch* to specific speech act types in a corpus we need to make sure that we correctly identify the speech type of the corpus tokens. This means that on the one hand we need to distinguish rhetorical questions from ordinary questions, and on the other hand, we also need to distinguish rhetorical questions from exclamatives, because we cannot rely on the authors of the texts to have always used the 'correct' punctuation.¹⁷

As for the distinction between rhetorical questions and exclamatives, it turns out that rhetorical questions often are expressive in the sense that the speaker wishes to highlight a proposition in the common ground, which to him or her seems 'obvious' but has not been sufficiently appreciated. Therefore rhetorical questions can sound triumphant or reflect other such emotions on the side of the speaker. In contrast to exclamatives, however, they do not express surprise at a high degree. Still, since we are looking at *welch* here, which, according to our hypothesis, expresses that a particular degree was rather high, or at least above the standard, it is not always easy – at least in the case of positive-answer RQs – to tell them apart from exclamatives. Nevertheless, there is a criterion that is quite reliable for the distinction: answerability. We said above that rhetorical questions do not expect an answer. This does not mean, however, that they cannot be answered (Caponigro & Sprouse 2007). The answer can be given by the speaker him/herself or by the hearer. For instance, (35) above, repeated below as (36A) can be followed by a reaction like (36B):

- (36) A: You should stop saying that Luca didn't like the party last night. After all, who was the only one that was still dancing at 3am?
 B: Yes, you're right. It was Luca.

Exclamatives, which always 'give an answer' – if we follow D'Avis (2001, 2002) in his analysis of exclamatives as self-answering questions (see section 2) – cannot be answered (Eliot 1974). This is illustrated in (37):

- (37) A: How very tall this man is!
 B: # 2.10 metres. / # Very. / # Extremely!

In the case of positive-answer RQs with *welch* we expect that they can be answered by something like *very*, or *a very high x*. We shall below that this expectation is borne out.

Are there any reliable means to distinguish rhetorical questions from ordinary questions? For English, Sadock (1971) suggests that discourse markers like *after all*, as in (35), or *yet* are reliable indicators. In German, rhetorical questions often come with particular modal particles (Meibauer 1985, Thurmair 1989) and with verbs in the subjunctive mood, includ-

¹⁷ In the corpus data where an exclamation mark was used as the search criterion there also were some rhetorical questions. Everything I say below about the question-mark tokens applies to them as well.

ing modal verbs (*sollte* 'should', *würde* 'would'; Meibauer 1986).¹⁸ There has also been some debate around the combined contribution of the subjunctive mood and negation which has been identified as not being propositional (cf. Meibauer 1986). Therefore, modal particles, modal verbs, the subjunctive mood and the negative marker *nicht* should be good indicators for rhetoricity.¹⁹

With this much in hand let us turn to the *welch*-occurrences in the corpus that I have suggested are occurrences in rhetorical questions. Let us first look at positive-answer RQs and consider (38). (38) does not contain clear indicators for rhetoricity (the subjunctive of the copula verb in the embedded clause is a consequence of reported speech). Out of context, the sentence could easily be interpreted as an exclamative. Yet the subsequent context consists of two questions that are not easily interpreted as exclamatives. For instance, the first sentence with *why* does certainly not express surprise at the reason why children do not have a lobby comparable to that of animal-rights activists. If we assume that this passage employs the rhetorical means of parallelism the target sentence must be a question. Let us also apply the criterion of answerability. It seems that the target sentence can be answered by something like *Sehr krank* ('very sick').²⁰

- (38) Da hat sich ein Homöopath wieder geoutet: Mit Hokuspokusmedizin lässt sich im gesättigten Gesundheitsmarkt München bei esoterisch angehauchten Müttern besser punkten als mit der Nüchternheit der wissenschaftlichen Medizin. Tatsache ist, dass Infektionskrankheiten wie die Masern nur durch Impfung ausgerottet werden können, wie es ja bei Pocken und Polio bald geschehen wird. *Once again, a homeopath has come out of the closet. On the Munich health care market hocus-pocus medicine is easier to sell to mothers with esoteric leanings than is the rationality of scientific medicine. It is a fact that contagious diseases like the measles can only be eradicated through vaccination, just as smallpox and polio soon will be.*

Welch krankem Gehirn entstammt der Gedanke, dass für Kinder...
 welch sick brain.DAT stem.from the thought that for children
 mehrere Tage hohes Fieber eine "positive Selbsterfahrung" seien?
 several days high fever a positive self-experience are.SUBJ
 'From what sick mind does the thought emanate that a few days of high fever could be a 'positive self-experience' for children?

¹⁸ Meibauer (1986) identifies *schon* ('admittedly'), *auch* ('too') and *vielleicht* ('perhaps'). He says that the first two only serve to mark the question as a rhetorical question and have no meaning of their own. See Thurmair (1989) for an analysis where the basic semantics of these particles is fruitfully exploited to produce rhetorical readings.

¹⁹ But note that recent analyses of the negation in questions suggest that it is not confined to rhetorical questions, cf. Romero & Han (2004), Repp (2009, to appear), Krifka (2012).

²⁰ The judgement is not so clear here. A nominal answer such as *einem sehr kranken* ('from a very sick one') also is somewhat odd but this would be expected because the question is not about an individual.

Warum haben Kinder nicht die Lobby der Tierschützer? Wo bleibt der Aufstand unserer Universitätsgelehrten? Unsere Demokratie kann "Masernpartys" nicht verhindern, unser soziales Netz muss aber die Folgen, wie Krankenhauskosten etc., bezahlen. *Why do children not have the lobby of animal-rights activists? Where is the outcry of our university teachers? Our democracy cannot prohibit 'measles parties' but our social network must pay for the consequences such as hospital expenses.* A letter to the editor by a doctor.

Now, do we know whether the *wh*-clause in (38) is a rhetorical question or an ordinary question? I suggest that we do. (38) expresses that it is a very sick mind that the thought at issue emanated from. It does not ask for the degree of sickness of that mind. However, neither does it ask for a particular mind, i.e. person, as the same sentence with *welchE* would: *welch* can be replaced *welchE* in this context, resulting in a subtle meaning change. With *welchE* the sentence would express that the thought emanated from a person with a sick mind. The assumption that (38) is a rhetorical question is corroborated by an easily available rhetorical interpretation of the two follow-up questions. The first one can be interpreted as expressing that there is no reason that children do not have a comparable lobby to animal-rights activists, and the second one as expressing that there isn't anywhere an outcry of university teachers.

(39) is another example where two rhetorical questions appear in sequence (again there are no clear indicators for rhetoricity). (39) is from a text that falls in the category of stylistically dated texts but since the style is not particularly 'archaic' I will discuss the example here. (39) is interesting because it illustrates how thin the line between rhetorical questions and exclamatives is. Or, to be more precise, that rhetorical questions can be just as expressive as exclamatives. Note that in the original English translation the translator, a British Marxist scholar, chose to use an exclamation mark rather than a question mark. Of course, this does not mean that we are dealing with an exclamative in the German version here but it shows that there is a high degree of expressivity. One indicator for the rhetorical question status of the original German version is again the discourse structure. Again, I suggest that the critical *wh*-clause and the one following it are intended to be discourse-parallel. Considering that the second *wh*-clause can only be interpreted as a negative-answer RQ and not as an exclamative – there is no expression of surprise at a high degree – it is plausible to assume that the *welch*-sentence also is a rhetorical question. Another indicator is the occurrence of *überhaupt* ('anyway') in the clause. This adverb is odd in clause-internal position in verb-final exclamatives, i.e. in exclamatives for which there is no alternative interpretation as question available, see (40).²¹ Finally, (39) can probably be answered by *Sehr töricht* ('very silly').

²¹ Note that the *if*-clause does not indicate that we cannot be dealing with an exclamative. The verb-final variant of (39) is fine (if we leave out *überhaupt*). Furthermore, there are corpus occurrences of exclamatives with *if*-clauses, e.g.

- (i) Welch ein Glück, wenn wir doch noch rechtzeitig stolpern
 welch a luck if we PART enough in.time stumble
 und auf die Nase fallen!

- (39) Welch eine törichte, unpraktische Illusion ist überhaupt ein parteiloser
 welch a silly impractical illusion is anyway a impartial
 Richter, wenn der Gesetzgeber parteiisch ist?
 judge if the legislator is partial?
 'How altogether foolish and impractical an illusion is an impartial judge when the leg-
 islator is not impartial!'
 Was soll ein uneigennütziges Urteil, wenn das Gesetz eigennützig ist? *What is the use
 of a disinterested sentence when the law favours self-interest!* Karl Marx. (1842). De-
 batten über das Holzdiebstahlgesetz. *Debates on the law on thefts of wood.* Transla-
 tion by Clemens Dutt (1893-1974).
- (40) a. ^{??}Wen der überhaupt eingeladen hat!
 who.acc he.dem anyway invited has
 b. Überhaupt! Wen der eingeladen hat!
 'The people that he invited!'

These two examples should suffice to illustrate that *welch* can occur in positive-answer RQs.

I suggest that *welch* is suitable in positive-answer RQs because it encodes that the degree it asks for is above the standard. In this characteristic it contrasts with *wie* ('how'), which just asks for a degree. The difference can be seen in the following two examples. (41a) means that Peter's height is above or equal to the standard of tallness (say, of men). It is usually assumed that this meaning component is contributed by a silent positive morpheme, and which I assume to be present in a slightly different form in the denotation of *welch* (see above). The question in (41b) does not ask for the degree that Peter is above the standard degree of tallness. It asks for his height, e.g. in terms of some precise measurement (5ft or 6ft2), or in terms of a vague description (*very tall, not so tall, short*). Peter does not have to be tall for that question to be felicitous. Indeed, he can be very short.

- (41) a. Peter is tall.
 b. How tall is Peter?

Thus there is no positive morpheme in (41b) and *how* has a different semantics from *welch*.

Since rhetorical questions – similarly to exclamatives – are essentially self-answering questions the felicity of *welch* in these questions does not come as a surprise – at least for positive-answer RQs. A positive-answer RQ always expresses that the degree to which the property in the restrictor of *welch* holds is a high degree, or more precisely, one above the standard for that property. So when in (39) the speaker 'asks' what a silly impractical illu-

and on the nose fall
 'How lucky we are if we stumble in good time and fall on our noses!'
 Peter Kafka: Zeit zum Aufstehen. Anmerkungen zur Überwindung der globalen Beschleunigungskri-
 se. *Time to get up. Notes on how to overcome the global acceleration crisis.*

sion an impartial judge is if the legislator is partial, what s/he asserts is that an impartial judge is a very silly impractical illusion.

Let us next turn to negative-answer RQs. Recall that negative-answer RQs usually denote the empty set. (42) is a negative-answer RQ with *welch*. It is possibly a little more complex than need be but the meaning is intuitively clear, and such more intricate examples are in no way rare or exceptional. (42) occurs in a text passage that is highly sarcastic. Since sarcasm, as a form of irony, says the opposite of what is meant – which is quite similar to what rhetorical questions do –, we need to be careful when disentangling the precise meaning here. The text passage as a whole says that it is very obvious that the times for football matches are scheduled in a way that the media would gain maximum profit from broadcasting the matches (presumably through advertising revenue). The negative assertion that the rhetorical question here expresses is that nobody would draw the ludicrous conclusion that the media would have anything to do with the scheduling of match times. This is supported by the next sentence essentially giving the answer (*Nein... (no)*). Since the whole passage is ironic the speaker eventually means the opposite but the rhetorical question works in the way that negative-answer RQs are expected to work.

- (42) Bravo, Herr Meier. Da sitzen also die wahren Schuldigen. Wir, die Deutschen, spielen jetzt rein zufällig ein Top-Spiel am Samstag Abend aus. Aber nicht weil das Fernsehen es so möchte. (*Well done, Mr Meier. That's where the real culprits are. It is pure coincidence that we, the Germans, are playing a top game on Saturday night. It is not that television wants it like that.*)

Welch normal denkender Mensch mit Schulabschluss würde zu so
 welch normal thinking person with school.leaving.certificate would to such
 einer irrsinnigen Schlussfolgerung kommen?
 a ludicrous conclusion come

'What rational person with some school education would arrive at such a ludicrous conclusion?'

Nein, Premiere wurde von der Bundesliga geradezu gezwungen ein Samstagabendspiel zu übertragen. (*No, Premiere [a pay TV station] was virtually forced by the Bundesliga to broadcast a Saturday night game.*)

From *www.blutgraetsche.de*, a webpage with football comments.
<http://www.blutgraetsche.de/he/24/02405620010403.php>

In this example the restrictor of *welch* in (42) is not a gradable predicate: it denotes the set of people that have a 'normal' view on life and that had a school education. I suggested in section 3 that in such cases there is a silent gradable predicate whose degree argument *welch* binds. Now, the only way to rephrase (42) in a 'degree-relevant' way seems to ask to what rather high degree a sane, normal person must be unusual (in other domains than views on life) to actually arrive at such a conclusion. So the question is one about what an individual would have to be like to arrive at this conclusion, and the assertion the rhetorical question contributes is that there is no degree of unusualness that would make the proposition true, and one can deduce from this that there is no person that would fit that description. Note

that this is slightly different from a minimal variant with *welchE*, which would be felicitous in this context as well. This variant would ask for a person and the assertion that the rhetorical question contributes would be that no-one with a normal view on life and with a school education would come to such a conclusion. So the answer no-one should be more appropriate for the *welchE* variant than for the *welch* variant, which seems to be correct. However, the judgement is very subtle and possibly not reliable.

The example in (42) is representative of the eight negative-answer RQs in the corpus. When compared to a *welchE* variant, most²² of them express that the speaker 'wonders' about the high degree of unusualness, which s/he considers so unlikely that the answer is a negative one. How exactly this negative answer is to be derived is not so clear at present. I do not have the space to work this out in detail here. A conclusive account would have to take into consideration data like those in footnote 22, and it would have to account for embedded *welch*-clauses as well. I am leaving this for another occasion.

We saw above that rhetorical questions often come with negative polarity items. It has been suggested that the rhetorical force in these questions is actually *induced* by (strong) negative polarity items (e.g. Progovac, 1994; Giannakidou 1998; Den Dikken and Giannakidou, 2002). Negative polarity items have been argued to be elements on a scale (Krifka 1995). This is similar to *welch*, which also relates to a scale. There is an important difference, though: strong negative polarity items denote elements at the bottom of the contextually associated scale. This is not the case for *welch*, which denotes a high degree. Let us nevertheless ask the question of whether or not *welch* induces the question it occurs in to be interpreted as a rhetorical question, see Zifonun, Hoffmann & Strecker, B. (1997) for the remark that *welch*-questions (in stylistically dated texts) often seem to have the effect of a rhetorical questions. The answer is: *welch* seems to induce a question to be rhetorical: although *welch* occurs in non-rhetorical questions, these always involve a register shift. We will see evidence for this in the next section.

4.2 Register shift: 'mystery' questions

In the corpus there are five matrix questions that we could call 'mystery' questions: they express that something is particular mysterious or wonderful-impressive like in a fairy tale. Here are two examples:

²² There are two examples that do not fit this description. One is the following from a webpage for Bavarian dentists, where it is implausible to speak of degrees of unusualness. I have not explanation for the felicity of *welch* in this example. If there is a difference with the *welchE* variant, which would be possible here as well, it is the d-linking characteristic of *welchE*.

(i) Der floatende Punktwert bedeutet, dass der Arzt oder Zahnarzt immer erst im Nachhinein weiß, was er für seine Leistungen bekommt. Zudem führt er zu dem bekannten Hamsterrad-Effekt. *Due to the floating credit point calculation the doctor or dentist only knows after the treatment how much he can charge. Another consequence is the well-known rat race effect.*

Welch anderer Freiberufler muss unter diesen Rahmenbedingungen tätig werden?
 welch other freelancer must under these conditions busy become
 'What other freelancer has to work under such conditions?'

-
- (43) From a book review of a thriller: Im Februar 1968 wurde ein junger Leutnant kaltblütig erschossen - vermutlich von seinem Vorgesetzten. Warum hat die Army plötzlich Interesse an diesem Fall?? *In February 1968 a young lieutenant is shot in cold blood – presumably by a superior. Why, all of a sudden, is the army interested in this case??*
 Welch lang gehütetes Geheimnis verbirgt sich hinter der Geschichte?
 welch long guarded secret hides REFL behind this story
 'What well-kept secret is there behind this story?'
- (44) Und das ist die geheimnisvolle Büchse! Das Etikett ist schon seit vielen Jahren verschwunden. *And that's the mysterious tin! The label went missing years ago.*
 Welch fremdartige Wunder sind darin verborgen?
 welch foreign wonders are in.it hidden
 'What foreign wonders are hidden within?'
- Ein Schatz? Hundefutter? *Treasure? Dog food?* (From *The Simpsons*. Cartoon. German version.)

Such 'mystery' questions are the only matrix questions in the corpus where *welch* occurs. I suggest that what we find here is a temporary register shift – temporary with respect to the concrete discourse – to an older stage of the grammar, which has the rhetoric effect of enhancing the mysteriousness / wondrousness of what the speaker utters. I propose that the use of *welch* in questions in modern German does not reflect the grammar of contemporary German. Rather, in a neutral register, *welch* in (43) would be replaced by *welchE*, and in (44) it would be replaced by *was für*.

5 Conclusion

I have argued in this paper that the two *which*-phrases that German has have a different semantics and therefore have a different distribution in different types of speech acts. Uninflected *welch* ranges over degrees (cf. Gallmann 1997; D'Avis 2001, 2002). Inflected *welchE* ranges over individuals such that the sets of individuals in its restrictor must be contextually given, i.e. *welchE*-phrases are d-linked. This imposes conditions on the context which are rarely met so that *welchE*-phrases in exclamatives are not very frequent. They do occur, though, and are clearly part of the grammar of modern Standard German.

I have shown that *welch* is not restricted to formal styles or archaic text types as has been claimed in previous literature. *Welch* reliably occurs in discourses that do not belong to the formal register or to texts predating 1945. My analysis has also shown, however, that *welch* predominantly occurs in nominal *wh*-exclamatives, which does not seem to be the case in older discourses. I have suggested that nominal *wh*-exclamatives are elliptical copula sentences. In the case of *welch* they are predicational copula sentences, and in the case of *welchE* they are specificational copula sentences. I assumed a simple semantics for the copulas in these two types of sentences without going into the specific characteristics of copula sentences in general. The main goal was to account for differences between *welch* and *wel-*

chE in nominal *wh*-exclamatives which I argued can be explained in an intuitive way via predication vs. identification.

Furthermore, I have shown that *welch* is not restricted to exclamatives but also occurs in rhetorical questions. I have argued that this is a natural extension because both exclamatives and rhetorical questions can be viewed as giving the answer to the question they formally encode. We might take this as indirect evidence for the question analysis of exclamatives, which I have adopted here, yet a conclusive analysis can only be provided once occurrences of embedded *welch* have been taken into account.

Overall the analysis has shown that the data in the domain of exclamatives with *welch*, *welch ein*, *welchE* and expressions like *was für* are fairly complex and that the phenomenon needs more research. We have seen that the pragmatics in terms of contextual restrictions must be well-controlled to understand the way the data pattern. We have also seen that a detailed investigation of individual *wh*-phrases is able to shed light on *wh*-clauses in their various uses as ordinary questions, rhetorical questions and exclamatives. This will lead to a better understanding of exclamatives as a sentence type, which – and that is an option which has not been taken serious enough in the literature so far – might well differ from language to language.

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