

# EVALUATIVE DEGREE MODIFICATION OF ADJECTIVES AND NOUNS

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# Abstract

It is a well-known but little-studied fact that evaluative adverbs - adverbs indicating the attitude of the speaker towards the information she is conveying - can modify degree (*incredibly tall, ridiculously expensive...*). This thesis offers a syntactosemantic account of evaluative degree modification of both gradable adjectives and gradable nouns.

Following Morzycki (2004), I propose that evaluative degree modification involves a covert operator (which I will call EVAL); however, my proposal differs from that of Morzycki in several crucial respects. Most importantly, I argue that evaluative degree constructions should not be analysed as embedded exclamatives. Furthermore, I show how their syntactic behaviour illuminates their semantic composition, using evidence from different phenomena in both English and Dutch.

Subsequently, I examine the linguistic evidence for the gradability of certain nouns, like *idiot, nerd, genius, Barbie doll enthusiast, and weirdo*, and conclude that they, like gradable adjectives, have a degree argument. I show how this class of gradable nouns may be defined in prototype-theoretic terms. Morzycki (2009) has shown that gradable nouns can be modified by size adjectives like *big* and *enormous*; I extend his account by including degree modification by evaluative adjectives.

Finally, several suggestions for further research are offered.

# Acknowledgements

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# Chapter 1

## Introduction

Although many researchers have noted that gradability is not just a property of adjectives (cf. Bolinger 1972, Abney 1987, Kennedy & McNally 2005), or that certain degree expressions (like French *trop*) are able to combine with a whole range of lexical classes (cf. Doetjes 1997, 2008), there are few syntactic and semantic theories of gradability in non-adjectives. Of course, not all apparent gradability, or compatibility with certain modifiers, may stem from the same source; for example, while *more* (and *less*) can be used to modify all expressions below, there seems to be an intuitive difference between what is happening in, say, (1a) and (1d-e):

- (1) a. Vernon is more intelligent than Maxwell.
- b. You need to exercise more.
- c. Maxwell appreciates jazz more than Vernon.
- d. This party needs more beer.
- e. This sentence contains more words than the previous one.

One way to try and put this difference into words is that the former involves *degree* - we can talk about lower and higher degrees of intelligence, for example, but not about degrees of beer, or degrees of words. Beer and words can occur in lower or higher *quantities*, but even so, they are either there - fully, undeniably - or they are not. It is not so simple with a property like intelligence (or height, or weight, or age...). I can state that Maxwell is *not intelligent*, but even a low degree of intelligence is a degree of intelligence, so in a way the property denoted by *intelligent* still applies to Maxwell. The same might hold for a verb like *appreciate*. I can say that Vernon appreciates jazz less than Maxwell, without implying that either of them actually likes jazz - maybe Maxwell just dislikes it less than Vernon.

So, to delimit our subject, we could centralise this notion of *degree* and state that the kind of gradability we want to talk about is present in the lexical semantics of the gradable element in the form of a degree argument. Thus, an individual cannot just have the property of intelligence - this is semantically

incomplete. We need to know *to what degree* this property holds of said individual; a gradable predicate cannot be interpreted if its degree argument is not saturated.

This means that we do not have to talk about quantification over event verbs (like *exercise*) or count and mass nouns<sup>1</sup>. Leaving experienter verbs like *appreciate* aside (for now - I will return to the issue in Chapter 3), it does seem that gradability in this narrow sense primarily concerns adjectives.

However, there is a class of count nouns that behaves exactly like gradable adjectives (modulo independent syntactic differences). Its most clearly definable members are nouns like *idiot*, *nerd*, *fan*, *psychopath*, *airhead*, *enthusiast*, *simpleton*, *loser* and *weirdo* - nouns that denote a person who possesses a certain gradable property. In Dutch, one can form them straightforwardly from gradable adjectives (at least those of Germanic origin) by means of the derivational suffix *-erd*: *slimmerd* from *slim* ‘smart’, *dikkerd* from *dik* ‘fat’, *gemenerd* from *gemeen* ‘mean’, and so on. Recently, Morzycki (2009) developed a theory of the syntax and semantics of the modification of such gradable nouns by size adjectives like *big*:

- (2) a. George is an enormous idiot.
- b. Three huge goat cheese enthusiasts were arguing in the corner.
- c. George is a bigger idiot than Floyd.

Although all three examples have readings in which the size adjective refers to the physical size of George or the others, this is not the most natural reading. Rather, we tend to interpret these size adjectives as claims about the *extent* of George’s idiocy or the goat cheese lovers’ enthusiasm: (2a) thus means that George is extremely idiotic, and so on.

But size adjectives are not the only adjectives that can modify gradable nouns. Many adjectival counterparts of so-called evaluative adverbs share with their adverbial sisters the possibility of modifying degree:

- (3) a. Maxwell is incredibly stupid.
- b. Maxwell is an incredible idiot.
- (4) a. Vernon is unimaginably tall.
- b. Vernon is an unimaginable goat cheese enthusiast.

In this thesis, I will focus on evaluative degree modification of adjectives as well as nouns, reviewing and extending two papers by Morzycki: one on evaluative modification of adjectives (Chapter 2), and the aforementioned account of noun modification by size adjectives (Chapter 3). The remainder of this first chapter will be devoted to an introduction on gradability and degree in general.

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<sup>1</sup>Nicolas (2004) shows that the notion of degree is in fact relevant to mass nouns derived from gradable adjectives (like *wisdom* and *generosity*). In this respect, they behave differently from ‘ordinary’ mass nouns (like *beer* and *furniture*); for example, like gradable adjectives and count nouns, they can be modified by a size adjective (*enormous wisdom*).



Subsequently, in Chapter 2, I will develop a new analysis of evaluative degree modification, which I will extend to gradable nouns in Chapter 3. Chapter 3 further contains a proposed definition of what exactly constitutes gradability in nominal predicates, and a discussion of some remaining issues. Chapter 4 contains the conclusion.

## 1.1 Gradability and degree

The literature on gradability and degree can be hard to get into, as there exist many different analyses even of the most basic elements involved, and researchers are not always explicit in their assumptions (let alone in their rejection of the alternatives). This section contains my attempts at distilling from the existing literature a set of basic assumptions on which to found the rest of this thesis, including their history and some possible alternatives. In section 1.1.1 I briefly discuss the semantics of gradable adjectives. Section 1.1.2 introduces the Degree Phrase, which provides the syntactic basis for this thesis. Section 1.1.3 introduces covert degree morphology. Finally, sections 1.1.4 and 1.2 discuss degree modification by words like *very* and *completely*, and how this relates to certain properties of the gradable adjective.

### 1.1.1 The semantics of gradable predicates

Intuitively, the denotation of a degree construction like *six feet tall* should resemble something like the following:

$$(5) \quad \llbracket \textit{six feet tall} \rrbracket_{\langle e,t \rangle} = \lambda x \exists d [\text{TALL}(d)(x) \wedge d = 6''0]$$

This denotation has several components. There is a degree predicate, TALL, that relates an individual  $x$  and  $x$ 's height  $d$  such that  $\text{TALL}(d)(x)$  means that  $x$  is tall to the degree  $d$ ; furthermore,  $d$  is compared to (in this case, equated with) a particular value, in this case six feet. So, the meaning of a sentence like *Vernon is six feet tall* can be paraphrased as ‘There is a degree  $d$  such that Vernon is  $d$ -tall and  $d$  equals six feet’. Similarly, the semantics of *Vernon is taller than Maxwell* should consist a degree predicate relating Vernon to his height, and a comparison between that height and some other value (provided, in this particular case, by Maxwell’s height). The comparison function here is not equality, but a greater-than relationship; had we used *less tall* or *as tall as*, it would have been yet another different function. This indicates that the comparison function is provided by elements like *less*, *more*, *-er*, *as...as*, and *too*, the so-called ‘degree morphology’. The comparison value, as we saw, is provided by elements like *six feet* or *than Maxwell*. The gradable adjective provides the degree predicate, which means we will assume the following denotation for gradable adjectives:

$$(6) \quad \llbracket \text{AP} \rrbracket_{\langle d, \langle e,t \rangle \rangle} = \lambda d \lambda x [\text{G}(d)(x)]^2$$

<sup>2</sup>As mentioned before, degree predicates relate individuals and degrees. This does not

While the above ingredients - degree predicate, comparison function, comparison value - all need to be present in the semantics, they may be absent from overt syntax. The so-called ‘positive form’ (*Vernon is tall*) intuitively involves Vernon’s height being favourably compared to some contextually defined standard degree, but neither the comparison nor the standard are overt. Similarly, *Vernon is six feet tall* lacks an overtly stated equality relationship between Vernon’s height and the degree of six feet, yet it is obviously there in the semantics. We solve this by assuming covert degree morphology, which I will discuss in more detail in section 1.1.2.

In the above approach, degree constructions (like *six feet tall*) are analysed in terms of existential quantification over the degree argument  $d$ . However, Kennedy (1997) argues that this approach leads to wrong predictions about the scopal behaviour of degree constructions. If degree constructions involved quantification, we would expect them to show scope ambiguities in sentences like (7a), just like other quantificational expressions (the indefinite DP in (7b)).

- (7) a. Vernon isn’t taller than Maxwell is.  
 b. Vernon didn’t see a black cat.

In (7b), *a black cat* can have either wide scope (‘there is a black cat such that Vernon didn’t see it’) or narrow scope (‘there is no black cat such that Vernon saw it’). Similarly, we might expect (7a) to be ambiguous between a narrow scope (‘there is no degree  $d$  such that  $d$  exceeds Maxwell’s height and Vernon is  $d$ -tall’) and a wide scope interpretation (‘there is a degree  $d$  such that  $d$  exceeds Maxwell’s height and Vernon is not  $d$ -tall’). The latter interpretation is compatible with there being some other degree  $d'$  such that  $d'$  exceeds Maxwell’s height and Vernon *is*  $d'$ -tall - which, obviously, contradicts our natural understanding of the meaning of (7a). In other words, degree heads do not seem to behave like quantifiers in this respect (but see Heim (2000) for some counterevidence).

This leads Kennedy to reject the degree predicate treatment of gradable adjectives and reduce them to measure functions, i.e. functions from individuals to degrees (type  $\langle e, d \rangle$ ). In effect, this treats gradable adjectives like a scale, along which individuals are measured. The adjective does not have a degree argument; rather, it takes an individual and returns a degree. In this approach, the denotation of *tall*, for example, is  $\lambda x[\text{HEIGHT}(x)]$ ; degree morphology functions to establish a comparison relation between  $\text{HEIGHT}(x)$  and some comparison value.

However, the choice between  $\langle e, d \rangle$  and  $\langle d, \langle e, t \rangle \rangle$  does not seem a very principled one. Often, the type adopted depends on the particular goals of the work in question; for example, while Kennedy (1997) and Svenonius & Kennedy (2006)

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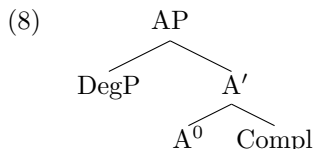
necessarily mean that every individual can be related to only a single degree. In fact, we will assume that individuals are related to a whole range of degrees; thus, for an individual  $x$  with a height of six feet,  $\text{TALL}(d)(x)$  is true for  $d=6''0$ , but also for all degrees  $d$  with a value lower than  $6''0$ . More on this in chapter 2.

opt for  $\langle e, d \rangle$ , Kennedy & McNally (2005) assume  $\langle d, \langle e, t \rangle \rangle$ . Similarly, Morzycki's (2004) account of degree modification by evaluative adverbs (*remarkably*, *surprisingly*) assumes a degree predicate approach, while his analysis of gradable nouns (Morzycki 2009) is measure phrase-based. It must also be noted that the  $\langle d, \langle e, t \rangle \rangle$  type is compatible with several slightly different denotations, so some additional semantic variety exists.

Throughout this thesis, I will assume that gradable adjectives denote degree predicates (type  $\langle d, \langle e, t \rangle \rangle$ , denotation as in (6)). This is not just for the sake of clarity and exposition: as we will see, it will become crucial in Chapter 2. However, as the measure phrase approach will make a brief return in Chapter 3, the reader is asked to bear its existence in mind.<sup>3</sup>

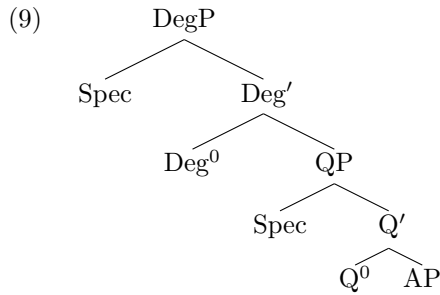
### 1.1.2 The Degree Phrase

In the earlier days of generative syntax, degree words were taken to occupy the specifier position of the adjective phrase (e.g. Jackendoff 1977:8), as in (8):



This corresponded to the general view of syntactic structures being projected by lexical heads. However, following the work of Chomsky (1986), Fukui & Speas (1986) and Abney (1987), among others, more and more phrase structures were taken to have a functional rather than a lexical head - most famously,  $S'$  became IP,  $S$  became CP (Chomsky 1986), and NP became DP (Abney 1987). Similarly, a functionally-headed alternative for the traditional AP was also proposed (Abney 1987, Corver 1991, 1997a,b): DegP, the degree phrase.

<sup>3</sup>Although I have only discussed approaches that involve degrees (elements of type  $d$ ), not all analyses of gradability in fact do. The main alternative to degree-based approaches (for an overview of its proponents see Kennedy 1997, Rett 2008, van Rooij (to appear)) is to analyse gradable adjectives as 'vague'. One way to do this is to assume that gradable adjectives, like non-gradable ones, denote functions of type  $\langle e, t \rangle$ , but this is a partial function: for some individuals  $x$ , the truth value of  $\text{ADJ}(x)$  remains undefined. Whether  $\text{ADJ}(x)$  is true, false or undefined is determined by interpreting it relative to some comparison class, which is context-dependent (Klein 1980). For arguments against this view, see von Stechow (1984) and Kennedy (1997). See also Van Rooij (to appear) for a recent discussion of various views on gradability and vagueness.



Originally, AP was taken to be the complement of the degree word in Deg<sup>0</sup>, and degree modifiers were located in SpecAP; the additional Quantifier Phrase level was argued for by Corver (1997a,b), following similar suggestions by Bresnan (1973) and Creswell (1976). In this so-called ‘split DegP’, not all degree morphology occupies the same position: Deg<sup>0</sup> contains degree morphemes like *so*, *how*, *too*, and *as*, while Q<sup>0</sup> contains the quantifiers *less*, *more/-er*, and *enough*. SpecDegP can be occupied by various elements, in particular measure phrases. Modifiers like *very* and *extremely* appear in SpecQP.

Before AP became DegP, there was no structural way to distinguish ‘degree words’ from ‘modifiers’. Thus, *very tall* and *too tall* had precisely the same syntax, with both *very* and *too* located in the Spec of AP. One important empirical reason to adopt the DegP in (9) is that degree words and modifiers, in fact, do not behave identically at all. Corver (1991, 1997b) argues extensively for the claim that they occupy different syntactic positions. For example, they can appear together, as in (10), and show different behaviour in several constructions (11-12) (all examples from Corver (1991):

- (10) a. How very interesting!  
 b. Zo heel knap is ze anders niet. (Dutch)  
*that very pretty is she however not*  
 ‘She’s not that very pretty at all’
- (11) a. Too/how/that big a car  
 b. \*Very/extremely big a car
- (12) a. Though the house is very expensive...  
 b. Very expensive though the house is...  
 c. Though Mary is too shy for her own good...  
 d. \*Too shy for her own good though Mary is...

Furthermore, the fact that gradable modifiers can themselves be modified - i.e. form modifying phrases, of potentially infinite length - shows that they cannot be heads (cf. Morzycki 2004):

- (13) a. [pretty [insanely]] crazy

- b. [very [remarkably]] tall
- c. [fairly [embarrassingly]] angry

If we were to maintain that modifiers are heads and propose an alternative structure like [*pretty [insanely crazy]*], this would force us to assume that degree phrases can take other degree phrases as their complement. Obviously, this leads to the wrong predictions (for example, sentences like *\*Vernon is too six feet tall* or *\*How six feet tall is Vernon?* should be fine under this assumption). But more importantly, it is directly at odds with the reason that degree phrases exist in the first place - namely, to deal with gradability. Degree phrases themselves can, by definition, not be gradable; therefore, they cannot be selected by a degree head, which, by definition, needs a gradable complement.

Alternatively, one might suggest that the adverbs here do not modify each other, but rather all modify the adjective, intersectively - just as in *big expensive red car* the adjectives do not modify each other but the noun. There are a few objections to this. First, the intonation patterns differ: if the modifiers are all on the same level, modifying the same element (as in *big expensive red car* or *extremely, insanely, embarrassingly angry*), they all bear intonational stress. However, if they modify each other (as in *extremely red car* or *fairly embarrassingly angry*), only the first modifier bears stress. That the latter stress pattern is grammatical in (13) indicates that the structure is indeed as indicated.

Secondly, if the adverbs were all equally modifying the adjective, we would expect that both gradable and non-gradable modifiers could be preceded by others. However, this expectation is not borne out: *\*insanely pretty crazy*, *\*remarkably very tall*, and *\*embarrassingly fairly angry* are all ungrammatical. While this could, in theory, be due to some independent ordering criterion (comparable to the one that rules out *\*red big car*, for example), it is extremely suggestive (to say the least) that the effects of this criterion just happen to coincide with the independent predictions of the ‘modified modifier’ analysis. It should be obvious that the latter analysis is much more parsimonious than the former.

The above shows that there are clear structural differences between degree heads and degree modifiers. So, if modifiers occupy a specifier position, which one is it? In principle, we have three options: SpecDegP, SpecQP and SpecAP. The latter is ruled out, as evidenced by the fact that we can replace the AP with the anaphor *so* and still have a modifier (*Vernon is tall, even remarkably so*). The former predicts that the modifier will precede the degree word in sentences that have both, which is at odds with (10). This points to SpecQP as the position for the latter. (For a much more detailed argument, see Corver (1997a,b).) I will deal with the semantic side of modifiers in section 1.2.

In the remainder of this chapter, I will mostly use a slightly simplified version of DegP, as the distinction between DegP and QP will not be semantically relevant until halfway Chapter 2.

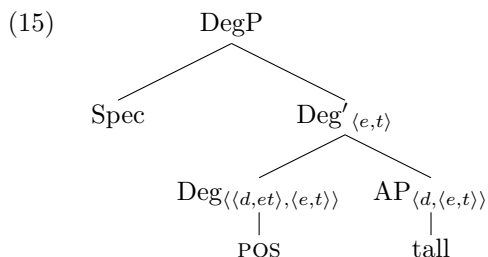
### 1.1.3 Covert degree morphology: POS and MEAS

Looking at the data in (14), it may seem that an adjective like *tall* is ambiguous between a property of type  $\langle e, t \rangle$  - in other words, behaves like a non-gradable adjective - and a degree predicate of type  $\langle d, \langle e, t \rangle \rangle$ .

- (14) a. Vernon is tall.  
 b. Vernon is quite tall.  
 c. Vernon is five feet tall.

In (14a), the so-called ‘positive form’, *tall* denotes the property of having a degree of height that exceeds some contextually determined standard (with respect to some comparison class, say adult men if Vernon is an adult man), whereas in (14b-c) it denotes a degree predicate, the degree of height being indicated by *quite* and *five feet*, respectively. Furthermore, (14c) does not entail (14a) (in this case, (14a) is false if (14c) is true). All in all, the *tall* in (14a) seems to be of a rather different kind than the *tall* in (14c).

But it is not generally assumed that gradable adjectives are ambiguous. Rather, the general approach is to assume a covert degree morpheme in Deg, which is applied to the adjective to yield the property reading. This morpheme, POS, was (to my knowledge) originally proposed in Cresswell (1976) (and see further von Stechow 1984, Kennedy 1997)<sup>4</sup>. (15) illustrates how it works:



Assuming POS ensures a *taller-than-d'* reading, where *d'* is some contextually defined standard or average, we may wonder what happens when SpecDegP contains a measure phrase, as in (14c). This is potentially problematic, as Zamparelli (1993) notes. Independently from the existing semantic literature on POS, he also argues for the presence of a null degree head, which he calls OP. Semantically, it does precisely the above: ensuring that the positive form gets a taller-than-standard interpretation. But in order to have this analysis account for the contrast between (14b) and (14c) - unlike (c), (b) does entail (a) - Zamparelli is forced to stipulate that “the semantic effect of OP in Deg is cancelled when there is some element in [SpecDegP]”. After all, we assume that measure phrases like *five feet* occupy the SpecDegP position, while modifiers

<sup>4</sup>Kennedy & McNally (2005) note that according to Sybesma (1999), Mandarin marks the positive form overtly, with the degree morpheme *hen*. This might be taken as crosslinguistic evidence for the existence of POS. See Liu (2009) for more on *hen* and Chinese degree phrases in general.

like *quite* do not (they appear in SpecQP). Obviously, this is not a very satisfying solution, as it results in a non-compositional degree semantics.<sup>5</sup>

Kennedy (1997), the first to base an extensive semantic account of gradability and degree constructions on Abney’s and Corver’s Extended AP, proposes a semantics for POS that does not result in problems with compositionality. In Kennedy’s analysis, all degree morphemes have the same basic denotation, (16a), which makes (16b) the denotation of POS:<sup>6</sup>

- (16)    a.  $\llbracket \text{Deg} \rrbracket = \lambda G \lambda d' \lambda x \exists d [G(d)(x) \wedge R(d)(d')]$   
           b.  $\llbracket \text{POS} \rrbracket = \lambda G \lambda d' \lambda x \exists d [G(d)(x) \wedge \text{POS}(d)(d')]$   
           c.  $\llbracket \text{POS}(d)(d') \rrbracket = 1$  iff  $\llbracket d \rrbracket \geq \llbracket d' \rrbracket$

Here,  $G$  is the denotation of some gradable adjective,  $d'$  is the comparison value, and  $R$  is a relation introduced by the particular degree morpheme. In the case of POS, this is a partial ordering relation ( $\geq$ ) between the actual and the comparison value.

Crucially, the comparison value is not part of the denotation of POS itself, but has to come from elsewhere. If DegP contains a measure phrase in its Spec, this will determine the standard value. If it doesn’t - as with the positive form - a variable (here  $s_G$ , which stands for ‘the standard of  $G$ ’) is introduced at DegP level:<sup>7</sup>

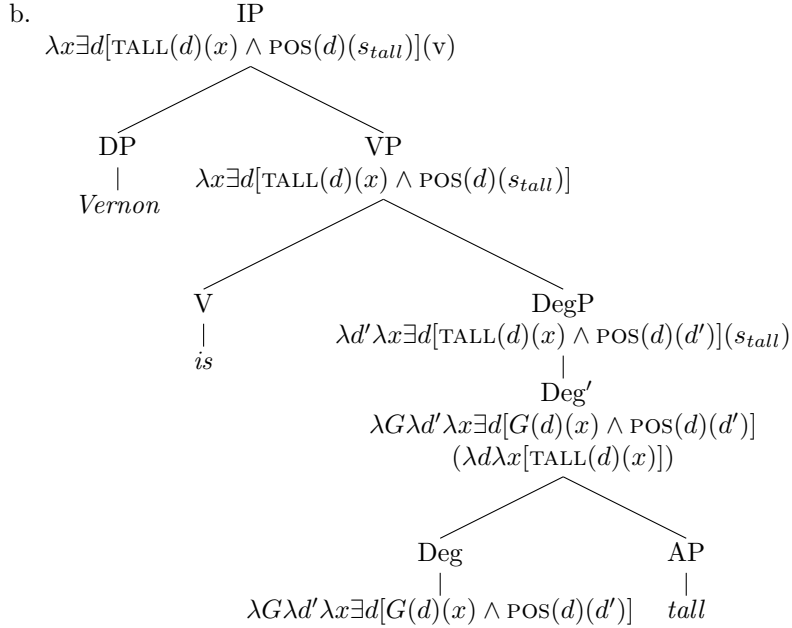
- (17)    a. Vernon is tall:  $\exists d [\text{TALL}(d)(v) \wedge \text{POS}(d)(s_{tall})]$

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<sup>5</sup>Klein (1980) rejects Cresswell’s POS-morpheme for similar reasons.

<sup>6</sup>In Kennedy’s original analysis, gradable adjectives denote measure functions; I have modified it to fit in with the degree predicate approach outlined above. (A more explicit example of such a translation can be found in Chapter 3, section 3.2.1.) Also, Kennedy himself uses ABS (for ‘absolute’) rather than POS.

<sup>7</sup>Tree adapted (with a small correction) from Kennedy (1997)



But as Kennedy himself already notes, this account has its problems as well. If the standard value enters the derivation by means of an indexical variable, it should remain constant under VP ellipsis, as (18a) shows (*that* must refer to the same drink in both conjuncts). This means that (18b) can only be true if father and daughter are tall with respect to the same standard. But obviously, this is not how we interpret it: we take (18b) to mean that Vernon is tall with respect to the average adult man, while his daughter is tall with respect to the average six-year-old.

- (18) a. Jude drank some of that, and Leo did too. (Klein 1980)  
 b. Vernon is tall, and his six-year-old daughter is too.

In the end, Kennedy has to assume that POS is ambiguous: POS<sub>1</sub>, which has the denotation in (16b), needs a measure phrase to saturate its degree argument, while POS<sub>2</sub> is used with the positive form and has the denotation in (19):

- (19) a.  $\llbracket \text{POS}_2 \rrbracket = \lambda G \lambda C \lambda x \exists d [G(d)(x) \wedge \text{POS}(d)(\text{STND}(G)(C))]$   
 b.  $\llbracket \text{POS}(d)(\text{STND}(G)(C)) \rrbracket = 1$  iff  $\llbracket d \rrbracket \geq \llbracket \text{STND}(G)(C) \rrbracket$

Here,  $C$  is the comparison class, and STND is a function that computes the standard value given the gradable adjective and the comparison class; for example, given a set of individuals (the extension of  $C$  in a particular world) and the measure function TALL, it returns these individuals' mean height as the standard degree.

In subsequent work of Kennedy, POS<sub>2</sub> is simply called POS, while POS<sub>1</sub> resurfaces in Svenonius and Kennedy (2006) as MEAS (for *measure*). MEAS imposes



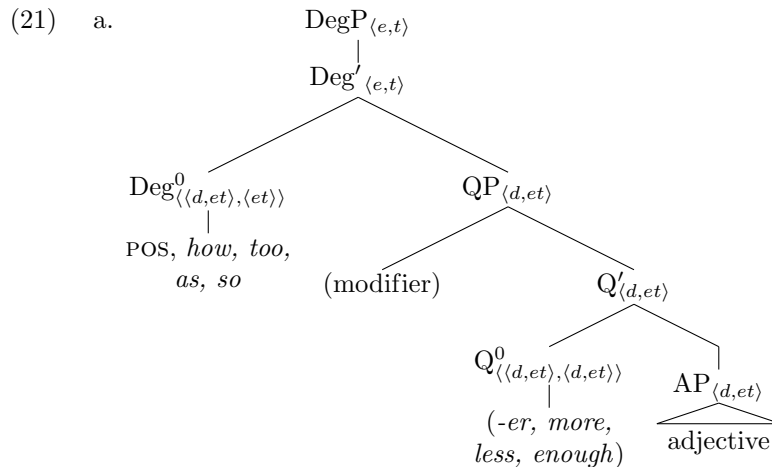
a requirement on its complement: it has to be a function from individuals to *measurable* degrees. This reflects the fact that (20a) is perfectly grammatical, whereas (20b) is not:

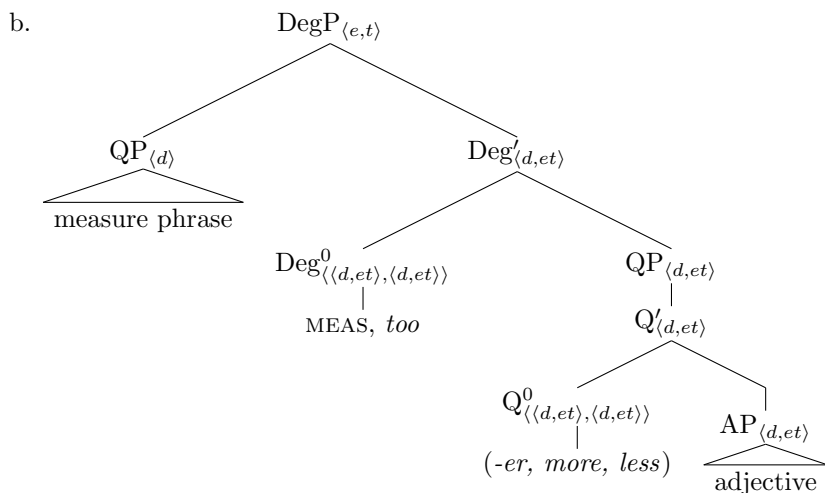
- (20) a. Vernon is five feet tall.  
 b. \*Vernon is five hours tired.

As can be seen above, POS and MEAS are closely related; their truth conditions are the same (the actual degree has to be greater than or equal to the standard degree), and the only difference is the way the standard-degree argument is saturated.

Finally, although little hinges on this for present purposes, I will follow Kennedy & McNally (2005) and Svenonius & Kennedy (2006) in assuming that comparatives do not themselves involve a comparison between actual and comparison value; this function still has to be performed by the degree heads POS or MEAS. Rather, comparatives alter the degree scale that comes with the adjective: the scale of *taller than Vernon*, for example, is the scale of height with everything below Vernon's height cut off, such that Vernon's height is the new zero degree (more about degree scales in the next section). This division of labour fits with Corver's previously mentioned syntactic observation that comparative morphology (*more*, *-er*, *less*) is different from the 'real' degree morphology located in Deg<sup>0</sup>. A consequence of this is that the 'degree' morphology in Q<sup>0</sup> cannot turn  $\langle d, \langle e, t \rangle \rangle$  degree predicates into ordinary  $\langle e, t \rangle$  predicates - only Deg-heads can do this. This observation will be relevant in Chapter 2.

To summarise these last two sections, the paradigm I am so far assuming is the following:





Note that the semantics of POS is slightly simplified here. As the way the standard value gets resolved is beyond the concern of this thesis, I will henceforth leave out the STND function and the comparison class and treat the standard value as fixed. The denotation of POS thus becomes

$$(22) \quad \lambda G \lambda x \exists d [G(d)(x) \wedge d \geq s_G].$$

#### 1.1.4 Properties of the degree scale

So far, we have been talking about degrees as ‘points on a scale’ without really having defined or formalised this notion. A trivial definition of a scale might be ‘a set of degrees’. But this definition is too broad: it excludes many of our intuitions about the nature of a ‘scale’, and neither does it provide us with a way to account for certain properties of degree constructions.

Following Bierwisch (1989), Rotstein & Winter (2004), Kennedy (2001), Kennedy & McNally (2005) and Rett (2008), among many others, we will define a scale as a triple  $\langle D, R, \phi \rangle$ , where  $D$  is a set of degrees,  $R$  a total asymmetric ordering relation on  $D$ , and  $\phi$  a dimension (i.e. what quantity is measured).

**Dimension.** The dimensional parameter captures the fact that not all degrees are alike - just as one cannot measure height in kilograms, degrees on a height scale and degrees on a mass scale are two incomparable species. This explains the fact that (23a) is perfectly fine, while (23b) is anomalous. Both *wide* and *long* involve degrees of linear extent, which can therefore be equated, but the same does not hold for *fat* and *bald*.

- (23) a. A square is as wide as it is long.  
 b. #Maxwell is as fat as he is punctual.

**Ordering relation.** The antonyms *short* and *tall* have the same dimension and the same set of degrees. However, they express inverse ordering relations: the higher up a degree  $d$  is on the shortness scale, the lower it will be on the tallness scale and vice versa. This accounts for the tautological nature of (24):

- (24) Maxwell is taller than Vernon iff Vernon is shorter than Maxwell.

Moreover, the relevance of the ordering relation parameter is demonstrated by several contrasts between antonyms:

- (25) *Compatibility with measure phrases:*

- a. Vernon is five feet tall.
- b. #Vernon is five feet short.

- (26) *Entailment of the positive form:*

- a. Maxwell is as tall as Vernon  $\not\models$  Maxwell and Vernon are tall
- b. Maxwell is as short as Vernon  $\models$  Maxwell and Vernon are short

- (27) *'Cross-polar anomaly':*

- a. Maxwell is wider than Vernon is tall.
- b. #Vernon is taller than Maxwell is short.

I will not try to account for these facts here; the reader is referred to e.g. Kennedy (2001) and references therein, Rett (2008) and Winter (2009).

Degree scales have several other properties, of which I discuss one below, as it is related to the distribution of degree modifiers.

**Open and closed scales.** Cruse (1980) argues that antonymous pairs of gradable adjectives come in two flavours, which he calls *complementaries* and *antonyms*. A pair of adjectives is said to be complementary when its denotations are disjoint; if  $A_1$  and  $A_2$  are complementaries, any object that is not  $A_1$  is necessarily  $A_2$  and vice versa. In contrast, antonyms do not exhaust their domain, such that, if  $B_1$  and  $B_2$  are antonyms, an object can be neither  $B_1$  nor  $B_2$ . Examples of the former are *clean/dirty* and *closed/open*, while examples of the latter are *short/tall* and *young/old*.

Furthermore, Cruse makes the important observation that antonyms are incompatible with proportional modifiers like *half* and *mostly*, and endpoint-oriented modifiers like *almost* or *fully*:

- (28) a. The door is half closed/open.  
 b. #Vernon is half tall.  
 c. The table is almost/fully clean.  
 d. #Maxwell is almost/fully young.

Cruse proposes that the reason for this is that antonyms map onto unbounded scales: as unbounded scales are infinite, it is impossible to compute some proportion of it or refer to an endpoint.<sup>8</sup>

However, complementaries do not behave uniformly with respect to the above modifiers. Only one class of complementaries is compatible with proportional modifiers, namely, those adjective pairs where both members are compatible with endpoint-oriented modifiers. The other class is comprised of those adjective pairs of which only one member is compatible with an endpoint-oriented modifier. The first is exemplified by the pair *open/closed*, while the second is exemplified by *dirty/clean*. Compare for example (28a) with (29a) and (28c) with (29b):

- (29) a. #The table is half clean/dirty.  
 b. #The table is almost/fully dirty.

Following the same line of reasoning, this can be explained by assuming that *open/closed*-type complementaries map onto scales that are bounded on both ends, whereas complementaries like *dirty/clean* map onto scales that are bounded on one end. More specifically, there is no maximum to how dirty something can be, hence *almost/fully dirty* is anomalous; however, cleanliness does have a maximum (once something has reached a certain point of cleanliness, it simply cannot get any cleaner), which is why *almost/fully clean* is fine. The adjective pairs that correspond to a scale that is bounded on one end are called PARTIAL/TOTAL pairs in the terminology of Yoon (1996) and Rotstein & Winter (2004); for example, *clean* is total, as something should have no amount of dirtiness whatsoever (or: a maximal amount of cleanliness) in order to be clean, whereas *dirty* is partial, as something needs to have only a certain degree of dirtiness in order to be dirty.

Following Kennedy & McNally (2005), we will call scales that have both a minimum and a maximum CLOSED, and scales that have either a minimum or a maximum, but not both, OPEN. While this classification is related to Cruse's complementary/antonym distinction, it has at least three empirical benefits over it. First, as shown above, it explains the distribution of the proportional modifier *half* (which can occur with closed, but not with open scales). Secondly, it correctly predicts that certain non-complementary antonyms do allow proportional modification:

- (30) a. The glass is not full  $\nabla$  The glass is empty

<sup>8</sup>This may seem strange if we consider adjectives like *short* and *young*; after all, mathematically speaking, there are clear minima to height and age (zero millimeters, zero seconds). However, considering the fact that having a height or age of absolutely zero is actually the same as having no height or age at all, it is clear that 'zero' cannot be part of the *linguistic* set of degrees of height or age. But for any height or age greater than zero - even if it's merely a millimeter or a second - we will always be able to imagine someone who is, for example, half that age or height. In other words, the linguistic scale of 'shortness' is asymptotic (so to speak) and hence unbounded. In the words of Kennedy & McNally (2005): "Scales that are open on the lower end include all of those degrees that approach the limit of 0 but lack a degree whose value is less than that of all the others in the set; scales that are closed on the lower end include such a minimal value, equal to 0".

- b. The glass is not empty  $\nVdash$  The glass is full
- c. The glass is half/almost/fully empty/full.

And finally, it accounts for the distribution of non-proportional modifiers, like the intensifiers *very* and *extremely*, which are incompatible with closed-scale adjectives:

- (31)
- a. #The door is very closed.
  - b. #The glass is extremely empty.
  - c. #The ghost is incredibly invisible.

In short, the distinction between open and closed scales is an important property of adjectival semantics, that adequately accounts for the distribution of degree modifiers.<sup>9 10</sup>

Related to the presence of minimal and maximal degrees is the nature of the standard value. In the paper discussed above, Cruse (1980) notes that complementaries in the positive form, unlike antonyms, do not involve comparison with some contextually determined standard or average; rather, their meaning can be paraphrased as ‘*adjective* enough’. The standard value of adjectives like *clean* and *safe* thus corresponds to the endpoint of their scale. Adjectives with a contextually determined standard are called RELATIVE, and adjectives with a standard value corresponding to the minimum or maximum of their degree scale are called ABSOLUTE (Kennedy & McNally 2005).<sup>11</sup>

<sup>9</sup>In an interesting study, Syrett & Lidz (in prep.) show that children as young as 30 months use adverbs as a clue to adjective meaning. Children were presented with a tall, transparent jar, and told that it was ‘very/completely/∅ *pelgy*’. Subsequently, they were presented with a short, opaque jar, and told that it was ‘not *pelgy*’. In the actual test, they were presented with both a short, transparent jar and a tall, opaque one, and asked ‘which one is *pelgy*?’ It turned out that children in the *very* condition looked longer at the tall jar, while those in the *completely* condition looked longer at the transparent one. The children in the no-adverb condition did not show any preference.

<sup>10</sup>See also Kennedy & McNally (2005), who base their account of the distribution of *very*, *much* and *well* as modifiers of deverbal adjectives (e.g. *needed*, *acquainted*, *surprised*) on the OPEN/CLOSED distinction.

<sup>11</sup>The pair *full/empty* behaves differently from other closed-scale pairs (like *open/closed*) in many respects. I already noted above that it is non-complementary (or: total/total rather than total/partial), but nevertheless behaves like Cruse’s complementaries in allowing proportional and endpoint-oriented modification. Furthermore, unlike other closed-scale adjectives, *full* and *empty* allow modification by intensifiers like *very*, *extremely* and *incredibly*. However, the entailment patterns that arise do differ:

- (i)
  - a. Vernon is very/quite tall  $\models$  Vernon is tall
  - b. The glass is very full  $\nVdash$  The glass is full
  - c. The theater is quite empty  $\nVdash$  The theater is empty (cf. Rotstein & Winter 2004)

My tentative suggestion is that the existence of a ‘grey area’ in the middle of the *full/empty* scale (due to the total nature of both *full* and *empty*, the largest part of the scale actually corresponds to objects that are neither) somehow leaves a pragmatic space for a relative interpretation, which can be triggered by modification or certain contextual factors - a scale measuring ‘volume of content’ rather than ‘fullness/emptiness’. This means that *full* and *empty* can behave in both an absolute and a relative way. How this suggestion holds up under further theoretical and empirical scrutiny remains to be seen.

## 1.2 The semantics of degree modifiers: some issues

If we assume that DegP looks like (21) above - and we have good reason to - we have to treat the modifier in SpecQP as a function  $\langle\langle d, et \rangle, \langle d, et \rangle\rangle$  from degree predicates to degree predicates.<sup>12</sup> In other words, if we modify *tall* by *extremely*, we get a degree predicate that relates an individual and a degree of ‘extreme tallness’. Subsequently, POS gets applied to it in the usual way, which explains why even modifiers that indicate a small degree, like *slightly*, result in a positive reading. This is similar to the treatment of comparatives I briefly discussed a few pages back: the result is, essentially, a new, absolute scale with the smallest degree that can still be called ‘extreme’ as its minimum. The incompatibility of this new measure function with a measure phrase - as exemplified by the ungrammaticality of a sentence like (32) - would be explained by the fact that degrees of ‘extreme tallness’ are not measurable (in the sense of Svenonius & Kennedy 2006) the way ordinary degrees of tallness are.

- (32) \*Maxwell is seven feet extremely tall.

However, while this seems an unproblematic assumption for modifiers like *very* or Dutch *ontzettend*, which (almost) exclusively occur as degree modifiers (*ontzettend* originally means *horrifying*, but is hardly used as such anymore), it is much less elegant in the case of evaluative adverbs. As Morzycki (2004) notes, the evaluative adverbs that can function as degree modifiers have the property that they can also occur in clause-modifying positions (examples from Morzycki 2004):

- (33) a. Clyde is remarkably tall.  
b. Remarkably, Clyde is tall.
- (34) a. Floyd is surprisingly ugly.  
b. Surprisingly, Floyd is ugly.
- (35) a. Floyd’s SUV is unacceptably inefficient.  
b. Unacceptably, Floyd’s SUV is inefficient.

---

<sup>12</sup>A second possibility is put forward by Klein (1980), who analyses degree modifiers as in fact modifying comparison classes. Thus, roughly, *very* in *very tall* picks out from the original comparison class only those individuals that are tall and returns this set as the new comparison class; hence the meaning of *Vernon is very tall* can be paraphrased as ‘Vernon is tall for a tall guy’. I will not pursue this option further here, because it seems to me very hard to ground in the syntax of DegP as presented in this chapter - Klein’s analysis is purely semantic.

To account for this fact, we would have to assume that all these adverbs<sup>13</sup> are systematically ambiguous between a measure phrase modifier and a propositional modifier; as these are rather different semantic operations, it would seem extremely hard to come up with a semantics for these adverbs that is capable of doing both. But of course, we don't want to assume of an entire open class of words that they are all ambiguous.

Another problem for the above account is our earlier observation (in section 1.1.2) that many of the modifiers can themselves be modified, even by each other. Examples like *surprisingly shockingly rude* or *unusually endearingly helpful* may not be perfectly ordinary, but they *are* perfectly interpretable. If these adverbs were of type  $\langle\langle d, et \rangle, \langle d, et \rangle\rangle$ , we would not expect them to be able to modify each other (also in section 1.1.2, we ruled out the option of intersective modification).

Finally, an analysis of modifiers as scale-altering functions from degree predicates to degree predicates does no justice to the wide range of existing degree modifiers. It might seem to work fine for modifiers like *very*, *pretty* and *fairly*, but if all *surprisingly*, *incredibly* and *blood-curdlingly* were able to do was re-define the minimum of the scale (or, in Klein's analysis, pick out some subset of the comparison class), it would be a mystery how to account for their (differences in) intuitive meaning without ending up with some kind of circularity (e.g. analysing *Vernon is surprisingly tall* as 'Vernon is tall for a surprisingly tall guy').

The above seems to call for a non-uniform treatment of degree modifiers. On the one hand, there are modifiers like *very*, *pretty*, *fairly* and Dutch *ontzettend*, which can only modify degree and are non-gradable. The analysis outlined above seems to work fine for them.<sup>14</sup> On the other hand, there are modifiers like our evaluative adverbs, that can modify elements other than degree, are gradable, and form a problem for the analysis above.

One approach in which the two classes of modifiers receive a non-uniform treatment is Morzycki (2004), who proposes that the latter class of adverbs, like measure phrases, appear in SpecDegP where they are licensed by a covert degree head R. Semantically, they denote simple propositional modifiers; the degree-modifying interpretation results from the semantics of R. The advantage of his analysis is that the adverbs have precisely the same denotation as

<sup>13</sup>Morzycki's (2004) paper includes the following small sample: *amazingly*, *astoundingly*, *arousingly*, *calmingly*, *disappointingly*, *earth-shatteringly*, *excitingly*, *extraordinarily*, *frighteningly*, *grotesquely*, *heart-breakingly*, *horribly*, *illegally*, *impressively*, *inappropriately*, *inconceivably*, *infuriatingly*, *interestingly*, *irritatingly*, *laughably*, *mind-numbingly*, *nauseatingly*, *provocatively*, *revoltingly*, *ridiculously*, *satisfyingly*, *shockingly*, *stimulatingly*, *stunningly*, *sufficiently*, *terribly*, *terrifyingly*, *typically*, *(un)acceptably*, *unbelievably*, *unexpectedly*, *unnervingly*, *(un)pleasantly*, *(un)remarkably*, *unusually*, *upsettingly*, *uselessly*, and *wonderfully*.

<sup>14</sup>*Ontzettend* is interesting from this point of view. Although its original evaluative meaning of 'shocking, horrifying' is negative, it is purely neutral in its use as a degree modifier (one could make the same claim about English *terrible*, although not all native speakers I consulted agree that this can be used neutrally). This fits with an analysis in which 'pure' degree modifiers only function to alter the adjective's degree scale, which is essentially a neutral operation - there is no way to contribute anything else to the semantics.

their corresponding adjective; this makes it a good starting point for a parallel theory on noun gradability. There are also some problems with it, however. For example, the SpecDegP location leads to several wrong predictions. Also, the syntactic and semantic similarities that do exist between the two classes of adverbs are ignored and obscured by the completely different treatment they receive in Morzycki's system. In the following chapter, I will look at Morzycki's analysis in more detail.



## Chapter 2

# Evaluative adverbs as degree modifiers

<sup>1</sup> In this chapter, I will present an analysis of degree modification by evaluative adverbs (which I will henceforth refer to as *EDC*, for ‘evaluative degree construction’). Section 2.1 summarises one of the few, if not the only, existing accounts of EDCs, as developed in Morzycki (2004)<sup>2</sup>. In section 2.2, I will argue in favour of a simplification of the semantics proposed by Morzycki. Subsequently, in section 2.3, I will demonstrate that Morzycki’s analysis is syntactically inaccurate, and present an alternative analysis based on data that show so-called *much*-support (Corver 1997a), and on gender agreement phenomena in Dutch. Finally, I will show how the new syntax and semantics fit together.

### 2.1 Previous accounts: Morzycki (2004)

Morzycki’s starting point is the observation that a large and open class of adverbs, which he calls *remarkably*-adverbs, can systematically modify gradable adjectives as well as complete sentences. The different positions are associated with a clear difference in meaning:

- (1) a. Maxwell is  $\left\{ \begin{array}{l} \text{surprisingly} \\ \text{remarkably} \\ \text{amazingly} \\ \text{shockingly} \end{array} \right\}$  tall.

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<sup>1</sup>A paper based on this chapter will be presented at the Student Session of the 2010 European Summer School in Logic, Language and Information (ESSLLI) in Copenhagen. I am grateful to the two anonymous reviewers for valuable comments and suggestions, which the paper as well as this chapter has definitely benefited from.

<sup>2</sup>Another one is Katz (2005), although he only discusses the semantic, not the syntactic, side of the matter

- b.  $\left\{ \begin{array}{l} \text{Surprisingly} \\ \text{Remarkably} \\ \text{Amazingly} \\ \text{Shockingly} \end{array} \right\}, \text{ Maxwell is tall.}$

The sentences in (1a) do not entail those in (1b): if we were expecting Maxwell to be tall, but just not *that* tall, we could utter (1a) but not (1b).

The semantics of the (b)-sentences is uncomplicated: the adverb simply modifies the proposition expressed by *Maxwell is tall*. But what exactly do the adverbs modify in an EDC like *Maxwell is remarkably tall*? Do they similarly modify propositions, and if so, what do these propositions express? Where does the semantic difference between (1a) and (1b) come from? Morzycki considers several paraphrases:

- (2) Maxwell is remarkably tall.
- a. It is remarkable that Maxwell is as tall as he is.
  - b. It is remarkable to be as tall as Maxwell is.
  - c. It is remarkable how tall Maxwell is.

He subsequently rejects (2a) and (2b) for two reasons: they are true in several situations in which we would understand the original sentence to be false, and unlike the original sentence, they are not factive - they do not entail that Maxwell is, in fact, tall. To make the first point clear, consider a situation in which Maxwell is in fact remarkably short - surely, we would be able to claim (2a). However, we would not call the remarkably short Maxwell *remarkably tall*. In another scenario envisioned by Morzycki, Maxwell was born at precisely 5:09 in the morning, on the fifth day of the ninth month of 1959 - and to our amazement, his height happens to be exactly five feet and nine inches. This is remarkable indeed, and yet, again, we would not be able to claim that Maxwell is *remarkably tall*.

The second point is related to the first: for the paraphrases in (2a) and (2b) to be true, there is no need for Maxwell to be in fact tall. However, as Morzycki argues, the sentences in (1a) all entail their corresponding positive form: if Maxwell is remarkably tall, it must also be true that he is tall.

The remaining paraphrase - that Morzycki takes to be the correct one - is (2c), in which the adverb modifies an embedded exclamation (*How tall Maxwell is!*).

Following Zanuttini & Portner (2003), Morzycki takes exclamatives to denote sets of true propositions, just as questions do (cf. Karttunen 1977):

- (3)  $\llbracket \text{How tall Maxwell is!} \rrbracket = \{p : p \text{ is true and there is a degree of height } d \text{ such that } p \text{ is the proposition that Maxwell is } d\text{-tall}\}$

The type of an evaluative adverb like *remarkable* is a function  $\langle\langle\langle s, t \rangle, t \rangle, t \rangle$  from sets of propositions  $\langle\langle s, t \rangle, t \rangle$  to truth values. For *Maxwell is remarkably tall* to be true,  $\text{REMARKABLE}(p)$  must be true for some proposition  $p$  in the set (see (4b)). For current purposes, this amounts to the denotation in (4c), in which reference is made to sets of degrees rather than sets of propositions.

- (4) a. Maxwell is remarkably tall = It is remarkable [how tall Maxwell is!]  
 b.  $\exists p[p \in \{\text{'Maxwell is 6 feet 1 inch tall'}, \dots, \text{'Maxwell is 6 feet 2 inches tall'}, \dots, \text{'Maxwell is 6 feet 3 inches tall'}, \dots, \text{'Maxwell is 6 feet 4 inches tall'}\} \wedge \text{REMARKABLE}(p)]$   
 c.  $\text{REMARKABLE}(\wedge \exists d[d \in \{\text{'6 feet 1 inch'}, \dots, \text{'6 feet 2 inches'}, \dots, \text{'6 feet 3 inches'}, \dots, \text{'6 feet 4 inches'}\} \wedge \text{Maxwell is } d\text{-tall}])$

In short, analysing constructions like the one in (4a) involves quantification over a set of degrees. But how is this set constructed? To answer this question, Morzycki again looks at exclamatives. Two important properties of the semantics of exclamatives, according to Zanuttini & Portner, are FACTIVITY (see above) and DOMAIN WIDENING. To understand the nature of the latter, consider the difference between (5a) and (5b) (from Morzycki 2004):

- (5) a. Herman eats everything.  
 b. What (surprising) things Herman eats!

Arguably, the domain of *everything* in (5a) is restricted by the context such that we do not expect it to include “lightbulbs, his relatives, or presidential elections” - or, in general, anything but ordinary food. For (5a) to be true, it is not necessary that Herman’s eating habits include things like live locusts for breakfast; it merely suggests that Herman is a particularly easy dinner guest. In contrast, (5b) does suggest that the domain of things eaten by Herman also includes the extraordinary, like live locusts or raw serrano chillies. This is the effect of domain widening.

To adequately capture the semantics of EDCs, then, it is necessary to incorporate both domain widening and factivity into the semantics of the embedded exclamative. This ultimately leads Morzycki to propose the following semantics for *Maxwell is remarkably tall*:

$$(6) \quad \text{REMARKABLE}(\wedge \exists d \exists C'[C' \supset C \wedge d \in C' - C \wedge \text{TALL}(d)(m) \wedge d \geq s_{tall}])$$

Here, factivity is captured by  $d \geq s_{tall}$ , and domain widening by  $C' \supset C \wedge d \in C' - C$ . The former in fact amounts to incorporating the semantics of POS (as repeated in (7); see also section 1.1.3) into the denotation:

$$(7) \quad \llbracket \text{POS} \rrbracket = \lambda G \lambda x [\exists d [G(d)(x) \wedge d \geq s_G]]$$

The latter probably needs more explanation. It ensures that there is some widened domain  $C'$  that is a superset of the original domain  $C$ , and moreover, that the degree  $d$  to which Maxwell is tall is contained in that part of the domain which was created by the widening (i.e.  $C' - C$ ). After all, only this part includes the degrees that do in fact correspond to a remarkable height.

We might wonder why it is still necessary to build in a contextual restriction on  $d$  by means of  $C$  and  $C'$ , if the POS-part already ensures that Maxwell’s degree of height exceeds the standard. But leaving this part out would lead to the wrong semantics:

$$(8) \quad \text{REMARKABLE}(\wedge \exists d[\text{TALL}(d)(m) \wedge d \geq s_{\text{tall}}])$$

(8) amounts to stating that it is remarkable that Maxwell is tall, which is obviously not what we are trying to say. In contrast, the denotation in (6) not only captures the fact that Maxwell’s degree of height must exceed the standard, but also that it must fall within the domain widened by exclamation; in other words, that it must be a degree that is somehow unexpected, “not among [those] already contextually salient” (Morzycki 2004).

Morzycki’s next goal is to provide a syntax for EDCs that will lead to the semantics in (6). He proposes that evaluative modifiers (i.e. *remarkably*-adverbs) are located in SpecDegP, where they are licensed by a covert degree head. This means that evaluative modifiers are treated similar to measure phrases, which also occur in SpecDegP and are licensed by a covert degree morpheme in  $D^0$ . This, according to Morzycki, would account for certain distributional similarities between measure phrases and modifiers (examples from Morzycki 2004):

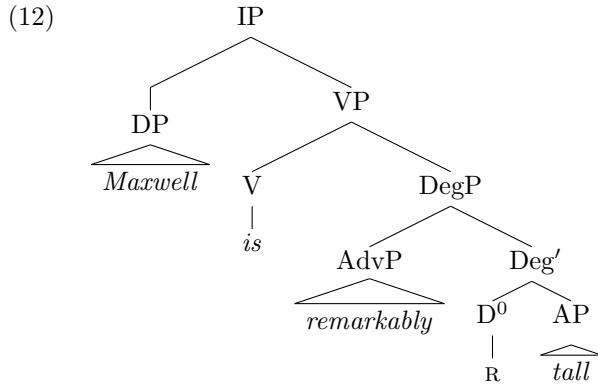
- (9) a. Floyd is  $\left\{ \begin{array}{l} \text{six feet} \\ \text{remarkably} \end{array} \right\}$  tall  $\left\{ \begin{array}{l} * \text{six feet} \\ * \text{remarkably} \end{array} \right\}$ .  
 b. Floyd is  $\left\{ \begin{array}{l} * \text{six feet} \\ * \text{remarkably} \end{array} \right\}$  very tall.

Morzycki chooses to treat the evaluative modifiers themselves as simple propositional modifiers, as in (10), and have the semantics of the degree head - which he calls R - take responsibility for factivity and domain widening ((11b)).

$$(10) \quad \llbracket \textit{remarkably} \rrbracket = \llbracket \textit{remarkable} \rrbracket = \lambda p[\text{REMARKABLE}(p)]$$

$$(11) \quad \llbracket R \rrbracket = \lambda G \lambda R \lambda x [R(\wedge \exists d \exists C' [C' \supset C \wedge d \in C' - C \wedge G(d)(x) \wedge d \geq s_G])]$$

In building up the semantics of an EDC like *Maxwell is remarkably tall*, the head R is applied to the denotations of its complement (AP) and specifier (*remarkably*, or in general, AdvP), and the resulting IP-denotation is in turn applied to the denotation of its specifier (*Maxwell*, the subject DP). The following tree and step-by-step derivation show how this process results in the semantics established in (6):



$$\begin{aligned}
(13) \quad & \llbracket \text{Maxwell is remarkably R tall} \rrbracket \\
& = \llbracket \text{R} \rrbracket (\llbracket \text{tall} \rrbracket) (\llbracket \text{remarkably} \rrbracket) (\llbracket \text{Maxwell} \rrbracket) \\
& = \lambda G \lambda R \lambda x [R(\wedge \exists d \exists C' [C' \supset C \wedge d \in C' - C \wedge G(d)(x) \wedge d \geq s_G])] \\
& \quad (\lambda d \lambda x [\text{TALL}(d)(x)]) (\llbracket \text{remarkably} \rrbracket) (\llbracket \text{Maxwell} \rrbracket) \\
& = \lambda R \lambda x [R(\wedge \exists d \exists C' [C' \supset C \wedge d \in C' - C \wedge \text{TALL}(d)(x) \wedge d \geq s_{\text{tall}}])] \\
& \quad (\lambda p [\text{REMARKABLE}(p)]) (\llbracket \text{Maxwell} \rrbracket) \\
& = \lambda x [\text{REMARKABLE}(\wedge \exists d \exists C' [C' \supset C \wedge d \in C' - C \wedge \text{TALL}(d)(x) \wedge \\
& \quad d \geq s_{\text{tall}}])] (\text{m}) \\
& = \text{REMARKABLE}(\wedge \exists d \exists C' [C' \supset C \wedge d \in C' - C \wedge \text{TALL}(d)(\text{m}) \wedge d \geq s_{\text{tall}}])
\end{aligned}$$

The remainder of this chapter will be devoted to a critical evaluation of Morzycki's analysis. Based on these criticisms, I will propose an alternative analysis that I feel is an improvement in several ways. However, it is still similar in spirit to Morzycki's analysis as summarised above, in retaining the notion of a covert degree head R and *remarkably*-adverbs as propositional modifiers.

## 2.2 Semantics

In this section, I will argue that analysing EDCs as embedded exclamatives leads to unnecessary complications. I also show that Morzycki's reasons for rejecting the alternative cease to be valid when we take into account the fact that both gradable predicates and evaluative adverbs are monotone. Because of this, I argue that the semantics of R can be much simpler.

### 2.2.1 Some arguments against EDCs as embedded exclamatives

Morzycki's EDC denotation - repeated for ease of reference in (14) - has the evaluative modifier taking scope over the existential quantifier:

$$(14) \quad \llbracket \text{EDC} \rrbracket = R(\wedge \exists d \exists C' [C' \supset C \wedge d \in C' - C \wedge G(d)(x) \wedge d \geq s_G]) \text{ (for some gradable adjective } G, \text{ evaluative adverb } R, \text{ domain } C \text{ and individual } x)$$

This is a consequence of treating EDCs as exclamatives embedded under a modifier: the existential quantifier is part of the exclamative and hence has to be interpreted inside the scope of the modifier. There is something not entirely satisfying about this. If quantification over  $d$  would take place outside of the scope of the modifier, we would obtain a denotation that seems to fit the semantics of EDCs remarkably well, without having to involve  $C$  and  $C'$ :

$$(15) \quad \llbracket \text{EDC} \rrbracket = \lambda x \lambda G \exists d [R(\wedge G(d)(x)) \wedge G(d)(x) \wedge d \geq s_G]$$

Indeed, there is something redundant about the domain widening part of the denotation. It guarantees that the degree to which  $x$  is  $A$  is somehow so 'extreme' that it falls outside of the range of degrees we would naturally consider.

But that is just another way of saying that what is going on is ‘remarkable’, or ‘surprising’, or ‘unbelievable’. As an illustration, take a sentence like *Maxwell is remarkably tall*. Paraphrasing Morzycki’s denotation, the semantics of this would boil down to something like ‘It is remarkable that Maxwell’s degree of tallness is such that it is somehow unexpected’.

This is, in fact, a general problem of analysing EDCs as embedded exclamatives. An exclamative (*How tall Maxwell is!*) can itself be paraphrased as something roughly like ‘Maxwell is unexpectedly tall’. To quote Morzycki himself:

[The] idea [of domain widening] elegantly gathers together several otherwise slippery and elusive intuitions about what exclamatives mean. Among these are the intuition that exclamatives somehow involve an ‘extreme’ value for something, and that exclamatives convey that something is unexpected in a particular way.

Embedding this under a modifier that *also* conveys a sense of unexpectedness or surprise, then, leads to a strange kind of redundancy. After all, it suggests that the ‘unexpectedness’ of Maxwell being *d*-tall is the case even before the contribution of *remarkably* to the semantics. All in all, resorting to *C* and *C'* seems merely a clever way to smuggle the semantics of *remarkable* into the scope of the quantifier, rather than something independently motivated.

Considering the above, we can test empirically whether the embedded-exclamative analysis is true: we would expect the sense of unexpectedness or extremeness caused by domain widening to be there, regardless of the meaning of the modifier. This expectation is not borne out, however. The evaluative adverbs in (16) themselves do not express anything ‘extreme’, and indeed, the sentences in (16) do not seem to suggest unexpectedness or extremeness in any way.

- (16) Vernon is  $\left\{ \begin{array}{l} \text{disappointingly} \\ \text{arousingly} \\ \text{satisfyingly} \end{array} \right\}$  tall.

In short: the domain widening effect of certain EDCs, like *Maxwell is remarkably tall*, seems to be a consequence of the semantics of the particular adverb, rather than a property of this kind of construction in general. In light of this, it is unjustifiably redundant to incorporate domain widening into the EDC denotation separately from the denotation of the adverb.

Considering all this, it is clear that a semantics without domain widening is to be preferred. As we have seen in the previous section, we cannot just scratch the domain widening part from the denotation, as this leads to the wrong interpretation. What we need, therefore, is a semantics in which the existential quantifier binding the degree variable has scope over the evaluative adverb (as in (15)). As can be seen in (17), this defines the relationship between the different semantics associated with different adverb positions in an elegant, intuitive way, namely in terms of scope:

- (17) a. Maxwell is remarkably tall:  
 $\exists d[\text{REMARKABLE}(\wedge \text{TALL}(d)(m)) \wedge \dots] \dots]$   
 b. Remarkably, Maxwell is tall:  
 $\text{REMARKABLE}(\wedge \exists d[\text{TALL}(d)(m) \wedge \dots]) \wedge \dots$

However, one problem remains: the semantics we have thus arrived at corresponds to one of the paraphrases that Morzycki (2004) found reason to reject. The following section explores whether he was right to do so.

### 2.2.2 In which monotonicity saves the day

Consider again the data in (18):

- (18) a. ‘Clyde is remarkably tall.’  
 b. *The degree to which Clyde is tall is remarkable* (cf. Cresswell 1976, Katz 2005)  
 c. Clyde is in fact remarkably short.  
 d. Clyde’s height is exactly five feet and nine inches; moreover, he was born at precisely 5:09 in the morning, on the fifth day of the ninth month of 1959.

Morzycki (2004) claims that (18b) (or, more formally, ‘There is a degree  $d$  such that Clyde is  $d$ -tall and it is remarkable that Clyde is  $d$ -tall’) cannot be an accurate representation of the semantics of (18a), as it would be true in cases (18c-d), which obviously are not captured under the actual meaning of (18a). Recall that this is Morzycki’s main reason for deciding to treat sentences like (18a) as if they contained an embedded exclamative (‘It is remarkable [how tall Clyde is!]’).

However, as Katz (2005) and Nouwen (2005) show, this objection to the paraphrase in (18b) does not hold. Following them and Heim (2000), we assume that gradable predicates are MONOTONE in the following sense (Heim 2000):

- (19) A function  $f$  of type  $\langle d, \langle e, t \rangle \rangle$  is monotone iff  
 $\forall x \forall d \forall d' [f(d)(x) = 1 \ \& \ d' < d \rightarrow f(d')(x) = 1]$

In words: If  $x$  has a certain property to a degree  $d$ , it also has this property to all lower degrees  $d'$ .

If we assume that *tall* is monotone, (19a) - along with the paraphrase in (19b) - is correctly ruled out as an appropriate description of the situations in (19c-d), as it entails that any degree of height  $d' > d$  would also have been remarkable (Nouwen 2005, Katz 2005). For (19c), that means that Clyde’s height would still have been remarkable had it been average (i.e. taller than remarkably short), and for (19d), that a height of six feet would have been as remarkable as Clyde’s actual height of five feet nine. Obviously, neither is the case.

To see why this entailment holds, consider the fact that the modifier *remarkably* is also monotone - downward monotone, to be specific. A downward

monotone operator  $O$ , when applied to some proposition  $p$ , reverses  $p$ 's entailments:

- (20) a.  $O$  is  $\text{MON}\downarrow$  iff  $p \models p' \Rightarrow O(p') \models O(p)$   
 b. Mildred is reading a Booker Prize-winning novel  $\models$  Mildred is reading a novel  
 c. It is remarkable for Mildred to be reading a novel  $\models$  It is remarkable for Mildred to be reading a Booker Prize-winning novel

Similarly, as the monotonicity of *tall* implies that  $\text{TALL}(d)(x) \models \text{TALL}(d')(x)$  where  $d' \leq d$ ,

- (21)  $\text{REMARKABLE}(\wedge \text{TALL}(d')(x)) \models \text{REMARKABLE}(\wedge \text{TALL}(d \geq d')(x))$

In other words, the monotonicity of both *remarkable/remarkably* and *tall* ensures that if it is remarkable that  $x$  is  $d'$ -tall,  $x$  being  $d \geq d'$ -tall must also be remarkable. Hence, there is an independent reason why freakish heights (like one coinciding with one's date and time of birth) can not be called 'remarkable'.<sup>3</sup> This is the case regardless of the paraphrase we choose, so contrary to what Morzycki claims, we are not obliged to pursue an embedded-exclamative analysis because of this.

Factivity, however, is another matter. If we take *Maxwell is remarkably tall* to have a semantics along the lines of 'There is a degree  $d$  such that Maxwell is  $d$ -tall and it is remarkable that Maxwell is  $d$ -tall', the positive form *Maxwell is tall* is not entailed. However, we can easily remedy this by extending our paraphrase a bit: 'There is a degree  $d$  such that  $d$  exceeds the relevant standard value and Maxwell is  $d$ -tall and it is remarkable that Maxwell is  $d$ -tall'.<sup>4</sup>

Concludingly, we can use the EDC denotation arrived at in section 2.2.1 without landing ourselves into trouble. Considering the way the semantics of

<sup>3</sup>Nouwen (2009) uses monotonicity to account for another puzzling observation, originally made by Zwicky (1970), about the behaviour of adverb pairs like *usually/unusually* in sentences like *The children are (un)usually noisy*. More about this in section 3.1.

<sup>4</sup>It can also be argued that evaluative degree constructions do *not* actually entail their corresponding positive form. For example, it is not obvious that (ia) should entail (ib):

- (i) a. Vernon's bathroom is surprisingly clean.  
 b. Vernon's bathroom is clean.

However, the judgements are complicated here, as even total adjectives like *clean* are not always completely black and white. It might well be that (ia) does not entail (ib) because their comparison classes are different, as intuitively seems to be the case: in (ia), the cleanliness of Vernon's bathroom seems to be evaluated with respect to what we expect of Vernon, perhaps based on the state of other rooms in his house, while in (ib), Vernon's bathroom seems to be judged against some general standard of bathroom cleanliness. If we make the comparison class explicit, (ia) does seem to entail the corresponding positive form:

- (ii) a. Vernon's bathroom is suprisingly clean (for a room inhabited or used by Vernon).  
 b. Vernon's bathroom is clean (for a room inhabited or used by Vernon).

However, if for some reason one would still want to reject the entailment of the positive form by evaluative degree constructions, it is pretty easy to do so based on the present analysis: just scratch the relevant part of the EDC semantics.



EDCs is derived in Morzycki’s analysis, the obvious way to carry out this change is to adjust the semantics of  $R$ . After all, the other ingredients of the denotation do not change, they are just assembled in a somewhat different way.

The denotation I propose for  $R$  is the following:

$$(22) \quad \llbracket R \rrbracket = \lambda G \lambda R \lambda x [\exists d [G(d)(x) \wedge d \geq s_G \wedge R(\hat{G}(d)(x))]]$$

Here,  $G$  is a gradable adjective,  $R$  an evaluative adverb, and  $s_G$  the standard value for  $G$  with respect to a contextually defined comparison class.

## 2.3 Syntax

In this section, I will argue that evaluative modifiers cannot be treated on a par with measure phrases, as Morzycki does in assigning them both to SpecDegP. Rather, evaluative modifiers are - just as other degree modifiers, like *very* and *pretty* - located in SpecQP, and  $R$  in  $Q^0$ . Evidence based on *much*-support and gender agreement in Dutch is presented to support this claim.

### 2.3.1 Not in SpecDegP, but in SpecQP

First of all, it must be noted that modifiers do not pattern with measure phrases in many respects. For example, Morzycki claims on the basis of (23) that both measure phrases and modifiers are “in complementary distribution with overt degree words in the [DegP] in which they occur”, which he takes as evidence that both must be licensed by a covert degree head.

$$(23) \quad \text{Floyd is } \left\{ \begin{array}{l} \text{*six feet} \\ \text{*remarkably} \end{array} \right\} \text{ very tall.}$$

But *very*, as we have seen in section 1.1.2, is not a degree head but a modifier. *Six feet* and *remarkably* are ruled out for two completely different reasons here: *six feet* because measure phrases and modifiers are generally incompatible (cf. section 2.4.1), and *remarkably* because the only available modifier position, SpecQP, is taken by *very* (and *very*, being non-gradable, cannot itself be modified).

In fact, as we have already seen in section 1.1.2, evaluative modifiers (like other degree modifiers, and very much unlike measure phrases) are in fact perfectly grammatical if they appear to the right rather than to the left of the degree head.

$$(24) \quad \begin{array}{l} \text{a. How } \left\{ \begin{array}{l} \text{*six feet} \\ \text{remarkably} \end{array} \right\} \text{ tall Maxwell is!} \\ \text{b. Maxwell is so } \left\{ \begin{array}{l} \text{*six feet} \\ \text{remarkably} \end{array} \right\} \text{ tall that all tourists want to take a} \\ \quad \text{picture with him.} \\ \text{c. Maxwell is just as } \left\{ \begin{array}{l} \text{*six feet} \\ \text{remarkably} \end{array} \right\} \text{ tall as Vernon.} \end{array}$$

One might object that it is not clear whether the various degree heads here in fact head the DegP that contains *remarkably* as a modifier. They might also modify *remarkably* itself, such that [*how/so/as remarkably*] as a whole is the modifier, and DegP is still headed by POS. However, there are at least three reasons to assume that this is not the case. First, note that we can replace each instance of *remarkably* in (24) with the non-gradable *very*. This shows that there is nothing wrong with having both an overt degree head and a modifier, so as long as one cannot prove that evaluative modifiers behave differently from *very*, one has no reason to assume that they do.

Secondly, recall that comparative and equative constructions are semantically anomalous if the adjectives that are compared are not measured along the same dimension ((25a) vs. (25b)). We can use this fact to determine which element is compared to which in a sentence like (24c). If the evaluative adverb were the modifier in a DegP headed by *as*, rather than its complement, we would expect the (a)nomaly of the comparison to depend only on the dimension of the adjective. And in fact, this expectation is borne out:

- (25) a. Maxwell is just as tall as Vernon is wide.  
 b. #Maxwell is as tall as he is arrogant.
- (26) a. Maxwell is as remarkably tall as Vernon is remarkably wide.  
 b. #Maxwell is as remarkably tall as Vernon is remarkably arrogant.

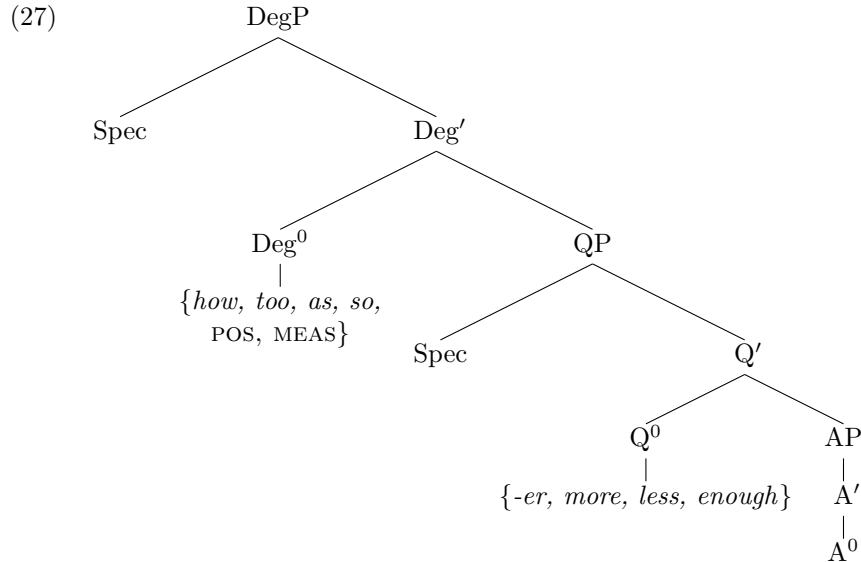
The difference between (26a) and (26b) would be inexplicable if the first instance of *remarkably* were compared with the second one, or with *wide/arrogant*; the only way to explain why (26b) is anomalous while (26a) is not, is to say that (26b) compares *tall* and *arrogant*, which do not have identical dimensions, whereas (26a) compares *wide* and *tall*, which do. This means that *tall* is the complement of *as*, and not *remarkably*.

Finally, the assumption that evaluative modifiers occupy the same position as ordinary degree modifiers like *very* is supported by the fact that there seems to exist a certain diachronic continuum between them, with evaluative modifiers losing their original meaning and coming to function as ‘pure’ degree modifiers. Perhaps the best example is the earlier mentioned Dutch *ontzettend*; English *terrible* seems to be undergoing the same development. This process is much easier to understand if the two classes share their syntactic distribution.

Concludingly, while there is no decisive way to prove for all possible overt degree heads that they can co-occur with an evaluative modifier in SpecQP, the facts we do have (*as*, at least, can; plus, evaluative modifiers pattern with *very* in every other respect) are suggestive enough. I will therefore assume that evaluative modifiers occupy the same location as degree modifiers like *very* and *pretty*: the Spec of QP. If this is true, we expect R - which licenses evaluative modifiers - to occur in Q<sup>0</sup> rather than Deg<sup>0</sup>. In the following section, I will present some data that support this expectation.

### 2.3.2 R as a covert Q-head: evidence from *much*-support

For easy reference, (26) reproduces the complete extended AP as discussed in the introduction:



Furthermore, I follow Corver (1997a,b) in assuming A<sup>0</sup>-to-Q<sup>0</sup> movement, which occurs when Q<sup>0</sup> is empty or contains *-er*.

However, A<sup>0</sup>-to-Q<sup>0</sup> movement is not always possible. In the case of English *so*-pronominalisation, for example, where the whole AP is replaced by the pro-form *so*, there is no A<sup>0</sup> to raise to Q<sup>0</sup>. Corver notes that this results in ungrammaticality when Q is empty (examples from Corver 1997a):

- (28) a. John is *fond of Mary*. Bill seems [less *so*].  
 b. Of all *careless* people, no one is [more *so* than Bill].
- (29) a. John is *fond of Mary*. \*Maybe he is [too *so*].  
 b. \*John told me he was *afraid of spiders*, but I wonder [how *so*] he really is.

While (28) shows that *so* is fine when it occurs with a Q-head (like *less* and *more*), (29) makes clear that Q<sup>0</sup> cannot be empty - *so* cannot occur when there is only a Deg-head (like *too* and *how*). To make the Deg<sup>0</sup> + *so* combination grammatical, Q<sup>0</sup> needs to be nonempty, which is achieved by inserting *much*:

- (30) a. John is *fond of Mary*. Maybe he is [too **much** *so*].  
 b. John told me he was *afraid of spiders*, but I wonder [how **much** *so*] he really is.

Note that the function of *much* here<sup>5</sup> is purely syntactic: it does not contribute anything to the semantics of the sentence and can therefore be rightfully called a ‘dummy’.

Now, consider the data in (31)

$$(31) \quad \text{Vernon is tall, even } \left\{ \begin{array}{l} \text{remarkably} \\ \text{surprisingly} \\ \text{incredibly} \\ \text{eerily} \\ \dots \end{array} \right\} \text{ (*much) so.}$$

The fact that *much*-insertion is ungrammatical here can only be explained by assuming that  $Q^0$  is not empty - it must be occupied by a covert element. The obvious candidate for this is R.

There is another argument in support of this. If R’s position is indeed  $Q^0$ , we would expect a contrast with a ‘natural-born’ degree modifier like *very*, which presumably does not need the mediation of something like R to be able to function as such. If *very* can modify degree directly,  $Q^0$  will be empty, and we would expect *much*-support to be necessary in the case of *so*-pronominalisation. This expectation is indeed borne out (and similarly for *pretty*)<sup>6</sup>

$$(32) \quad \text{Vernon is tall, even } \left\{ \begin{array}{l} \text{very} \\ \text{pretty} \end{array} \right\} \text{ *(much) so.}$$

Concludingly, the presence of a covert Q-head can be detected by testing whether *much*-support is necessary or not. In the case of evaluative modifiers, such a covert head is present; in the case of true degree modifiers like *very* and *pretty*, it isn’t. As the difference lies in the fact that the former need mediation in order to be able to modify degree while the latter do not, the obvious conclusion is that this mediation is exactly the function of the covert Q-head - in other words, R is located in  $Q^0$ .

### 2.3.3 R as a covert Q-head: evidence from Dutch gender agreement

The analysis presented above defines the difference between evaluative modifiers and ‘true’ degree modifiers (e.g. *very*, *pretty*) in terms of their ability to modify degree directly - the latter can, while the former need the mediation of EVAL. In English, this claim is supported by the presence or absence of *much*-support

<sup>5</sup>*Much* can also be a lexical quantifier, as in the following examples:

- (iii) a. Vernon and Maxwell resemble each other *much*.
- b. Mildred is *much* afraid of guinea pigs.
- c. Too *much* love will kill you.

This is not the use of *much* we are concerned with here, however.

<sup>6</sup>So, Morzycki is correct in assuming that *very* and *pretty* are different from evaluative modifiers, and in recognising that they form a rather closed class - this just does not mean that therefore, they must be degree heads.

in the case of *so*-pronominalisation (*very* and *pretty* do need *much*-support). Dutch does not have *so*-pronominalisation, but it does offer some interesting independent evidence in the form of gender agreement between adjective and modifier.

- (33) a. Een belachelijk(\*e) dure fiets  
       ‘a ridiculously(-INFL) expensive bike’  
       b. Een ontzettend(?e) mooie fiets  
       ‘an extremely(-INFL) beautiful bike’  
       c. Een ?heel/hele mooie fiets  
       ‘a very/very-INFL beautiful bike’

*Belachelijke* ‘ridiculous’ in (33a) cannot receive a degree-modifying interpretation; only the non-inflected form can. The use of the inflected form *ontzettende* ‘extremely’ as a degree modifier, however, is relatively common; finally, degree-modifying *hele* ‘very’ has an overwhelming tendency to agree with the adjective. Other evaluatives pattern with *belachelijk*. The table below shows the Google results for several combinations of modifier and adjective:

	<i>dure</i>	<i>mooie</i>
<i>belachelijk</i>	13,900	3,210
<i>belachelijke</i>	1,610	262
<i>ontzettend</i>	5,520	23,100
<i>ontzettende</i>	351	27,300
<i>heel</i>	8,900	257,000
<i>hele</i>	27,200	873,000

Assuming that agreement reflects a Spec-Head relationship, the difference follows naturally from our assumptions: EDCs do not involve a Spec-Head relationship between the modifier and the adjective, as the presence of EVAL in  $Q^0$  prevents the adjective from raising there. In contrast, *heel/hele* ‘very’, as a proper degree modifier, does not need the mediation of an element like EVAL in  $Q^0$ , so the adjective can raise to this position, ending up in a Spec-Head relationship with the degree modifier (cf. Corver 1997b). Finally, the mixed behaviour of *ontzettend* is exactly what we would expect of an evaluative that is diachronically turning into a ‘real’ degree modifier.

## 2.4 Assembling the pieces

### 2.4.1 Splitting up *r*

One final syntactic question still needs answering. If *R* is indeed located in  $Q^0$ , is anything else heading DegP? This question, I think, cannot be answered without considering the semantics of *R* as proposed in section 2.2, which is repeated in (34) below.

$$(34) \quad \llbracket R \rrbracket = \lambda G \lambda R \lambda x [\exists d [G(d)(x) \wedge d \geq s_G \wedge R(\hat{G}(d)(x))]]$$

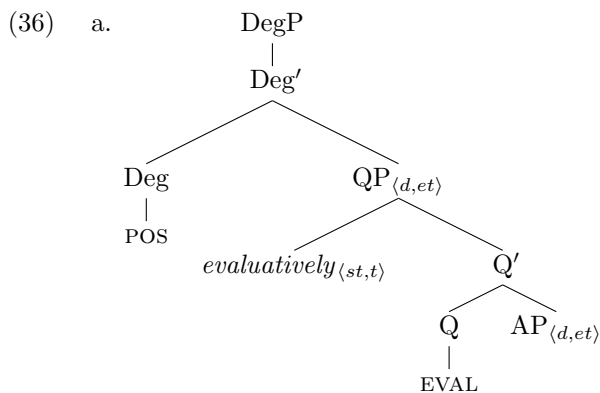
Like Morzycki’s  $R$ , this denotation incorporates the denotation of  $POS$ , which occurs as a degree head in the positive form (*Vernon is POS tall*) and in comparatives (*Vernon is POS taller than Maxwell*)<sup>7</sup>. However, as we saw in section 2.3.1, EDCs can be headed by overt degree heads in  $Deg_0$ . Recall that all degree heads, whatever their particular semantics may be, share a single purpose: to quantify over the adjective’s degree argument and thereby turn a  $\langle d, et \rangle$  degree predicate into an ordinary  $\langle e, t \rangle$  one. But in its current form, this task is already performed by  $R$ . This means that there is no way any degree head could combine with a QP headed by  $R$ .

Furthermore, in section 1.1.3, I have briefly argued that “the ‘degree’ morphology in  $Q^0$  cannot turn  $\langle d, \langle e, t \rangle \rangle$  degree predicates into ordinary  $\langle e, t \rangle$  predicates - only  $Deg$ -heads can do this”. This is also incompatible with an  $R$ -head that incorporates  $POS$ .

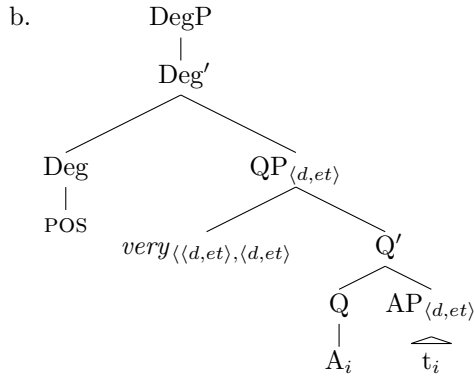
Considering all this, it seems clear that we should separate  $POS$  from the rest of  $R$  and assign it to  $Deg^0$ , parallel with the aforementioned degree constructions. Separated, the denotations of  $POS$  and  $R$  are as follows (to avoid confusion, I will henceforth refer to  $R$ -without- $POS$  as  $EVAL$ ):

$$(35) \quad \begin{array}{l} \text{a. } \llbracket EVAL \rrbracket = \lambda G \lambda R \lambda d \lambda x [G(d)(x) \wedge R(\hat{G}(d)(x))] \\ \text{b. } \llbracket POS \rrbracket = \lambda G \lambda x [\exists d [G(d)(x) \wedge d \geq s_G]] \end{array}$$

In section 1.2, we wondered how to analyse both evaluative modifiers and ‘true’ degree modifiers - like *very* - in a way that would explain both their differences and their similarities. The analysis we have currently arrived at seems very promising: it keeps the syntactic parallel between both classes of modifier intact, while allowing them to have quite a different semantics.

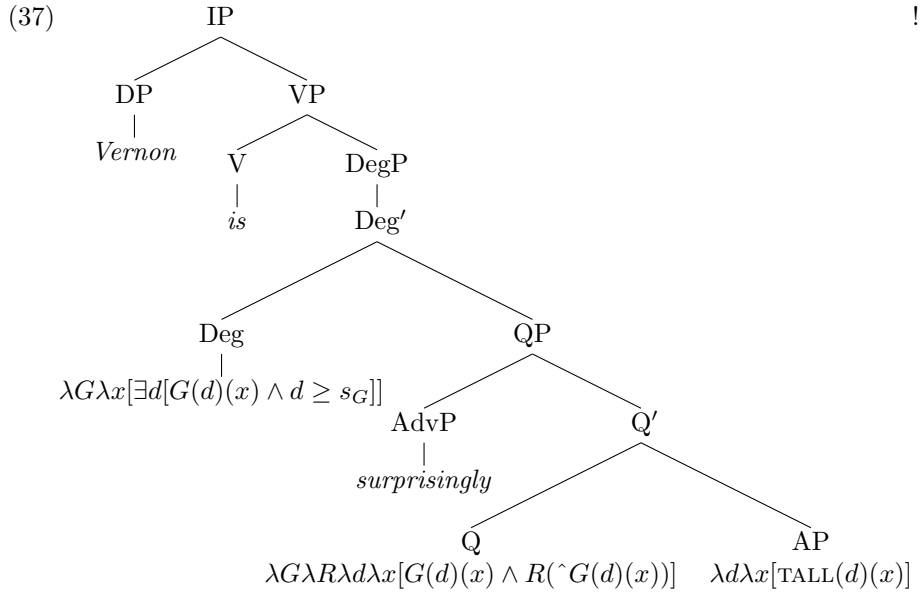


<sup>7</sup>Though this depends on the particular analysis of comparatives one wants to adopt. Comparatives with  $POS$  are proposed in Kennedy & McNally (2005), Svenonius & Kennedy (2006); other analyses (e.g. Heim 2000, Kennedy 2004) do not make use of  $POS$ .



Under the present analysis, both constructions are headed by POS; the only thing that makes them different is the presence or absence of EVAL (and its direct consequences, i.e. whether the adjective moves to Q<sup>0</sup>).

Assuming separate EVAL and POS heads, the semantics of a sentence like *Vernon is surprisingly tall* is built up as follows:



(38)

$$\begin{aligned}
& \llbracket \text{Vernon is POS EVAL surprisingly tall} \rrbracket \\
&= \llbracket \text{POS} \rrbracket (\llbracket \text{EVAL} \rrbracket (\llbracket \text{tall} \rrbracket) (\llbracket \text{surprisingly} \rrbracket)) (\llbracket \text{Vernon} \rrbracket) \\
&= \llbracket \text{POS} \rrbracket (\lambda G\lambda R\lambda d\lambda x[G(d)(x) \wedge R(\hat{\ }G(d)(x))] (\lambda d\lambda x[TALL(d)(x)]) (\llbracket \text{surprisingly} \rrbracket)) \\
&\quad (\llbracket \text{Vernon} \rrbracket)) \\
&= \llbracket \text{POS} \rrbracket (\lambda R\lambda d\lambda x[TALL(d)(x) \wedge R(\hat{\ }TALL(d)(x))] (\lambda p[\text{SURPRISING}(p)]) (\llbracket \text{Vernon} \rrbracket)) \\
&= \lambda G\lambda x[\exists d[G(d)(x) \wedge d \geq s_G]] (\lambda d\lambda x[TALL(d)(x) \wedge \text{SURPRISING}(\hat{\ }TALL(d)(x))]) \\
&\quad (\llbracket \text{Vernon} \rrbracket)
\end{aligned}$$

$$\begin{aligned}
&= \lambda x[\exists d[\text{TALL}(d)(x) \wedge \text{SURPRISING}(\wedge \text{TALL}(d)(x)) \wedge d \geq s_{tall}]](v) \\
&= \exists d[\text{TALL}(d)(x) \wedge \text{SURPRISING}(\wedge \text{TALL}(d)(v)) \wedge d \geq s_{tall}]
\end{aligned}$$

As we have seen, the above analysis leaves room for EDCs to be headed by other degree morphemes than POS.<sup>8</sup> For *so*, *as*, *how*, and *too*, this seems unproblematic. However, what about MEAS? Evaluative modifiers are incompatible with measure phrases, and hence incompatible with MEAS, a property they share with ordinary degree modifiers like *very*.

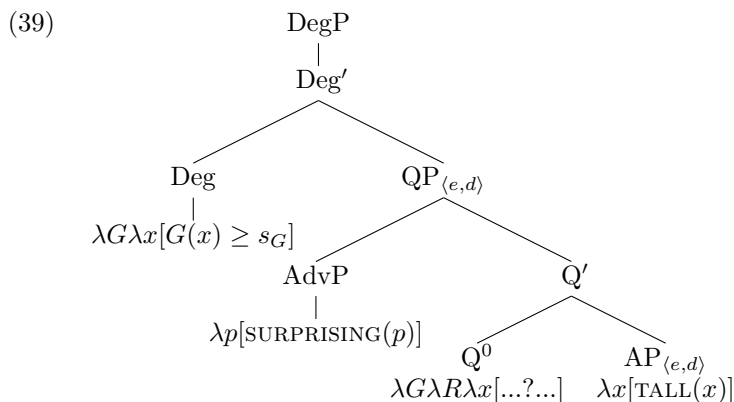
In section 1.2, I suggested that - at least in the case of *very* (and *slightly*, *pretty*, *fairly*...) - the problem may be the requirement, imposed by MEAS on its complement, that its degrees be *measurable*. Thus, *tall* can occur with MEAS because degrees of height are measurable, but *very tall* cannot, because the degree predicate returned by applying *tall* to *very* does not involve measurable degrees. However, it is unclear how evaluative modification, which at no point in its derivation involves a similar function from degree predicates to degree predicates, could have the same scale-altering effect.

An alternative solution is provided in the syntactic literature: Corver (1997a, 2009) suggests that measure phrases, while overtly appearing in SpecDegP, originate in the same position as modifiers (SpecQP) and hence are incompatible with them.<sup>9</sup>

I will not explore this issue further here; the important thing is that the incompatibility of modifiers and measure phrases is a general problem, and not a problem for the current analysis of evaluative modification in particular.

## 2.4.2 Back to the denotation of gradable adjectives

We may wonder whether an analysis similar to the one presented in this section would be possible under the assumption that gradable adjectives denote measure functions rather than degree predicates. The short answer is no. The somewhat longer answer is that quantification over a degree argument is the only way to give the degree scope over the propositional modifier.



<sup>8</sup>Incidentally, the ability of EDCs to be headed by degree morphemes like *so* and *how* is another thing that cannot be explained in Morzycki's (2004) analysis.

<sup>9</sup>This solution was pointed out to me by Norbert Corver (p.c.).



Unlike  $\hat{\text{TALL}}(d)(x)$ ,  $\text{TALL}(x)$  does not denote a proposition, so it is unclear what  $\text{EVAL}$  could do to link the AP and the adverbial modifier in the first place. Semantically, the adverb cannot do anything until much further into the derivation, but that means it will always take scope over the degree construction.

The only possibility for a measure function-based approach, as far as I can tell, is to reject the assumption that degree-modifying adverbs denote propositional modifiers. The fact that sentences like (40) are grammatical might speak in the favour of an analysis in which the adverbs directly modify measure functions:

(40) Vernon’s height is remarkable.

One might wonder what exactly is going on here, though, as in the measure function approach  $\text{HEIGHT}(v)$  denotes a degree, and semantically, there is nothing *remarkable* about a degree as such. As Morzycki (2004) argues: “if a degree is simply an interval on a scale as assumed here (...), predicating of this interval that it is remarkable or surprisingly or disappointing or strange would at a minimum fail to make obvious predictions, and at worst might be irredeemably incoherent”. For example, we may well assume that 7 is a degree. But to predicate of 7 that it is *remarkable* is meaningless. Adding a unit of measurement hardly improves this: there is also nothing *remarkable* about 7 feet or 7 hours. Now, having a *height* of 7 feet might be remarkable for an individual who is not a flagpole or a giraffe, but ‘having a height of 7 feet’ can hardly be construed as a degree anymore.

Concludingly, it might be hard, if not impossible, to analyse EDCs within a measure phrase-based approach to degree constructions; and *if* it is possible, it will not look anything like the analysis presented in this chapter.

## 2.5 Conclusion

In this chapter, I have critically examined the analysis of EDCs as developed in Morzycki (2004) and found that it could be improved semantically as well as syntactically. I have shown that there are several conceptual and empirical problems with an analysis of EDCs as embedded exclamatives, and subsequently, that the alternative Morzycki rejects is in fact perfectly valid if we assume that gradable adjectives and evaluatives are monotone.

Furthermore, I have shown that the syntax for EDCs proposed by Morzycki does not fit the data. My alternative consists of two major changes: first, relocation of  $R$  from  $\text{Deg}^0$  to  $Q^0$  (and the evaluative  $\text{AdvP}$  to  $\text{SpecQP}$ ), and second, separation of  $R$  into  $\text{EVAL}$  and  $\text{POS}$ . This allows the EDC to be headed by  $\text{POS}$  or some overt degree head, paralleling other degree constructions.

It also allows words like *very* and *pretty* to be treated syntactically like degree modifiers (occupying  $\text{SpecQP}$ ), while still explaining why they occasionally behave differently from evaluatives that occupy the same position: *very*, *pretty* and other ‘true’ degree modifiers, being of type  $\langle\langle d, \langle e, t \rangle \rangle, \langle d, \langle e, t \rangle \rangle\rangle$  (cf. Rett

2008), can directly modify the adjective without needing the intervention of something like R.

One aspect of Morzycki's analysis that stays the same in the present one is the assumption that the denotations of evaluative adverbs and their adjectival counterparts are identical. This will provide us with an excellent starting point for the next chapter, in which we will look at EDCs involving gradable nouns modified by adjectives.

## Chapter 3

# Degree modification of gradable nouns

Although nearly all the literature on gradability and degree as summarised in Chapter 1 refers only to adjectives, gradability, as we have seen, is not a property of adjectives alone. So, with the syntax and semantics of adjectival modification in place, it is now time to extend this analysis to modification of gradable nouns:

- (1) a. Vernon is an unbelievable idiot.
- b. Maxwell is a horrible geek.

First, however, it is important to have a clear notion of what exactly constitutes gradability in nouns. Do gradable nouns have a degree argument, and do they come with full-fledged degree scales, like adjectives? Or - another possibility - is their apparent gradability really some kind of metaphor or metalinguistic process? In section 3.1, I will examine the options, and argue that gradable nouns linguistically parallel gradable adjectives. Subsequently, section 3.2 will be devoted to degree constructions involving nouns rather than adjectives, starting with a review of Morzycki's (2009) analysis of degree modification by means of size adjectives, and then combining insights from Morzycki and the previous chapter into an analysis of EDCs involving nouns - sentences like *Vernon is an unbelievable idiot*. Section 3.3 concludes this chapter.

### 3.1 What makes a noun gradable?

In an attempt to define the kind of noun that receives a degree reading when modified by a size adjective like *big*, Morzycki (2009) writes:

Another way of articulating what I intend by 'gradable noun', then, is that gradable nouns are those for which a single criterion can be distinguished from the others as the most salient. For *idiot*,

it is stupidity (and not, say, animacy); for *smoker*, it is generally frequency of or affinity for smoking (and not, say, ability to inhale smoke); for *goat cheese enthusiast*, it is enthusiasm for goat cheese. It is this ability to identify a single scale that distinguishes nouns that admit degree readings of size adjectives from those that don't.

While Morzycki's description is definitely a step in the right direction, I feel it is still not entirely accurate. After all, why wouldn't *chair* be gradable, on a single, one-dimensional scale of how much it resembles a typical chair? That is, after all, exactly what we mean when we say things like *This object is more a chair than a table* or *This object is almost a chair*. People would easily be able to order a collection of more or less chair-like objects along such a scale. And yet, we cannot refer to an extremely chair-like object as *an unbelievable chair* or *a big chair* (in the interpretation 'very chair-like'). Conversely, there are nouns like *nerd* that are clearly gradable (as (1) shows), yet do not seem to "identify a single scale".

Sassoon (2007:2) proposes to treat all nouns as gradable, although her approach to gradability is different from that of Morzycki: in Sassoon's view, nouns have to be inherently gradable because their referents can be more or less typical examples of the concept the noun denotes. That typicality is psychologically real has been demonstrated in many studies in the 1970s (for an overview, see Rosch 1978 or Sassoon 2007). Rosch (1973 and subsequent research) experimentally confirmed Wittgenstein's (1953) idea that category membership is not a matter of meeting some definitional list of necessary and sufficient conditions; rather, entities can be more or less representative of a certain category based on their resemblance - across various dimensions - to an (abstract) prototypical category member. For example, some dimensions usually associated with the concept *bird* are *having feathers*, *flying*, *nesting*, *singing*, *eating insects*, and *small size*. A bird that scores high on all these dimensions (say, a robin) will therefore be considered a more 'birdier' bird than a huge bird that cannot sing or fly (say, an ostrich).

Indeed, people are remarkably consistent in ordering entities along such a typicality scale. Rosch (1973) also found that subjects' reaction times in deciding whether an entity belonged to a certain category depended on that entity's typicality: the less typical the entity, the more time it takes for people to confirm their category membership.

It will be clear that if one defines gradability as bearing more or less resemblance to a prototype, a noun like *chair* is just as gradable as a noun like *idiot*: just as there are various degrees to which one can be an idiot, there are also various degrees to which an object can exemplify a chair. Furthermore, Sassoon claims that this conceptual gradability of nouns is reflected syntactically in constructions like the following:

- (2) a. This is more a chair than a table.  
b. This is almost/nearly a chair.<sup>1</sup>

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<sup>1</sup>There is another reading in which some object or pile of building material is currently in

- c. This is pretty/very much a chair.

However, as already noted above, there are also degree constructions in which nouns like *chair* can not appear, whereas nouns like *idiot* can:

- (3) a. Vernon is a huge idiot.  
       ~*The extent of Vernon's idiocy is huge*  
 b. This is a huge chair.  
       ~*The extent of this object's chairness is huge*

The differences between the above approaches raises the question what exactly we mean when we are talking about the ‘gradability’ of nouns. Are we able to interpret nouns in degree constructions as graded because of their conceptual structure (in other words, is this a kind of metalinguistic gradability), or is their gradability a truly linguistic property because nouns, like adjectives, have a degree argument and come with a degree scale? And if so, what kind of degree scale is this? Do all nouns have them? Why can we talk about an *unbelievable idiot* but not in a similar way about an *unbelievable chair*? And conversely, why can we claim that an object is *almost a chair* while it is odd to say of a person that he is *almost an idiot*?

### 3.1.1 Linguistic versus conceptual gradability

Let’s take a closer look at some of the data above. First of all, I would like to note (2a) fits all the characteristics of metalinguistic comparison (cf. McCawley 1988, Morzycki 2008, Giannakidou & Stavrou 2009, Giannakidou & Yoon 2009), which can also occur with non-gradable predicates. Therefore, this particular construction does not provide evidence for the *linguistic* (rather than merely conceptual) gradability of nouns.

The semantic difference between metalinguistic comparison and ordinary comparative structures is exemplified in (4):

- (4) a. Snakes are more dangerous than spiders.  
       ~*The degree to which snakes are dangerous is higher than the degree to which spiders are dangerous*  
 b. Spiders are more scary than dangerous.  
       ~*It is more appropriate to call spiders scary than to call them dangerous.*

There are several structural differences between ordinary and metalinguistic comparison, some of which can be applied to comparisons involving nouns. First, as McCawley (1988) observes, the place of the comparative morpheme (*more*) may differ:

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the process of transforming into a chair, and *almost/nearly* indicates that the endpoint of this process has almost been reached. This is not the intended reading here.

- (5) a. Speeding is more legal than murder.  
 b. \*Speeding is legal more than murder.
- (6) a. George is dumb more than crazy.  
 b. I am a machine now more than a man.  
 c. This object is a chair more than a table.

So, while both orders *x more than y* and *more x than y* can be used with metalinguistic comparison, only the latter is grammatical in ordinary comparatives.<sup>2</sup>

Secondly, some languages (e.g. Greek, Giannakidou & Stavrou 2009; Korean, Giannakidou & Yoon 2009) morphologically distinguish ordinary from metalinguistic comparatives. A similar phenomenon can be found in English: in metalinguistic comparatives, it is possible to use the comparative morpheme *rather* (Dutch: *eerder*) instead of *more*, while this is ungrammatical in ordinary comparatives:

- (7) a. George is rather dumb than crazy.  
 b. This object is rather a chair than a table.  
 c. \*George is rather dumb than Bill.<sup>3</sup>

And crucially, metalinguistic comparison is possible with predicates that are not normally gradable:

- (8) a. Your problems are more financial than legal. (McCawley 1988)  
 b. \*Your problems are more financial than mine.

The above shows that the appearance of nouns in seemingly degree-related constructions does not necessarily provide evidence for their gradability. Metalinguistic comparison, in fact, is an excellent example of how certain constructions are interpretable by virtue of their conceptual structure, without requiring this structure to have a linguistic counterpart. A sentence like (9), for example, shows that metalinguistic comparison between predicates denoting ‘crisp’, sharply delimited concepts is uninterpretable:

- (9) #This number is more odd than even.

Likewise, we would not be able to make sense of a sentence like (6b) if it were not conceptually possible for a machine to be partly not a machine, or for a

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<sup>2</sup>But note that these sentences are not exactly comparable. In (5), *legal* is predicated of both *speeding* and *murder*. In (6a), however, it is not the case that *dumb* is predicated of both *George* and *crazy* (‘George is dumb more than crazy is dumb’). So it’s not just the place of the comparative morpheme that’s different - it’s the whole construction. The proper equivalent of (5) would be *George is dumb more than he is crazy*. Luckily, this is also grammatical, unlike <sup>2</sup>*Speeding is legal more than murder is*, so the gist of McCawley’s argument stays the same.

<sup>3</sup>This sentence can be made to work with contrastive focus intonation on *George* and *Bill*, but note that the result is again a case of metalinguistic comparison, paraphrasable as ‘It is more appropriate to call George dumb than it is to call Bill dumb.’

man to have just enough manly properties for the use of the word *man* to be still appropriate.

In short, we have to distinguish carefully between actual linguistic gradability (the property of having a degree argument) and mere conceptual gradability. But the above does not mean that all seeming gradability in nouns can be reduced to a combination of a certain conceptual structure and metalinguistic operations. In the remainder of this section, I will show that gradable nouns, like adjectives, behave like monotone predicates, providing evidence for the claim that they are in fact linguistically gradable and come with a degree argument. My eventual proposal on what constitutes gradability in nouns will contain elements of both Morzycki’s and Sassoon’s approaches.

### 3.1.2 Monotonicity

In the previous chapter (section 2.2.2), we have seen that the correct interpretation of EDCs can be ensured by the fact that degree predicates and evaluative adverbs are monotone (Heim 2000, Katz 2005, Nouwen 2005). Thus, claiming that it is unbelievable for Maxwell to have some degree of tallness  $d$  is only valid if Maxwell’s having any degree of tallness  $d' \geq d$  would *also* be unbelievable. This means, for example, that we cannot use (10a) in the context of (10b), even if being unbelievably short technically equals having an unbelievable degree of tallness (cf. (18) in section 2.2.2):

- (10) a. ‘Maxwell is unbelievably tall.’  
 b. Maxwell is, in fact, unbelievably short.

Monotonicity can also explain Zwicky’s (1970) observation that in adverb pairs like *usually/unusually*, the negative adverb can function as a degree modifier while its positive counterpart can only be interpreted as a sentential adverb (Nouwen 2009):

- (11) a. The children are unusually noisy.  
 b. The children are usually noisy.

*Unusually* (like *remarkably*) being downward monotone, (11a) implies that it would also have been unusual for the children to be even more noisy than they are now; however, it is well possible that there is some degree of noisiness  $d' < d$  that is not unusual for the children at all. Conversely, *usually* is upward monotone, which preserves rather than reverses entailments:

- (12) a.  $O$  is  $\text{MON}\uparrow$  iff  $p \models p' \Rightarrow O(p) \models O(p')$   
 b. Mildred is reading a Booker Prize-winning novel  $\models$  Mildred is reading a novel  
 c. It is usual for Mildred to be reading a Booker Prize-winning novel  $\models$  It is usual for Mildred to be reading a novel

So, what exactly does it mean to be ‘usually noisy’? Recall that the monotonicity of *noisy* implies that if  $x$  is noisy to some degree  $d$ , it is noisy to all degrees  $d' < d$  as well. Therefore, *every*  $x$  is noisy to the lowest possible degree (let’s call it  $d_0$ ). This in turn means that if there is *any* degree  $d$  of noisiness for which it holds that  $\text{USUAL}(\text{NOISY}(d)(x))$ , it also holds that  $\text{USUAL}(\text{NOISY}(d_0)(x))$ . But  $\text{NOISY}(d_0)(x)$  is true of every  $x$ . Therefore, any  $x$  that is noisy is also usually noisy - the degree reading of  $x$  *is usually noisy* is trivially true. This presumably explains why it is not attested.

What is interesting for our purpose here is that the above observations also hold for nouns:

- (13) a. Vernon is an unbelievable genius.  
 b. Vernon is a believable genius.

First, (13a) cannot be used to describe a situation in which Vernon is in fact extremely stupid, even though it is probably quite unbelievable that someone could have an IQ like Vernon’s. Secondly, while (13a) has a degree reading, (13b) has not. It is quite imaginable that we could interpret (13b) as something like ‘Vernon bears an average resemblance to the prototypical genius’, and yet we don’t.

Nouwen’s monotonicity analysis - or any analysis that explains the same set of facts - could easily deal with the data in (13), provided that we assume that nouns are degree predicates (as monotonicity is defined as a property of predicates of type  $\langle d, et \rangle$  (Heim 2000)).<sup>4</sup>

### 3.1.3 Scales and prototypes

Let us briefly return to Sassoon’s (2007) notion of nominal gradability, which is based on typicality. This is why we can easily interpret constructions like *almost a chair* or *pretty much a chair* - what we mean is ‘almost a typical chair’ or ‘pretty much a typical chair’. The typical chair itself, the prototype, is the epitome of ‘chairness’ - one simply cannot get more chair-like than that.

Translating this into other familiar terms, if nouns like *chair* were associated with a scale, its maximum would be represented by a complete similarity to the prototype. In other words, the scale of *chair* (or any other noun denoting a concept with a prototype) would be closed on the upper end (cf. section 1.1.4, Kennedy & McNally 2005). One property of closed degree scales is that they allow endpoint modifiers like *almost*, *pretty much*, and *completely*, and disallow intensifiers like *very*, *enormously*, and *terribly*; this fits with our earlier observations on nouns like *chair*, which allow *almost* but lack anything like a degree reading when modified by an evaluative or a size adjective.

- (14) *Closed scale: open, empty, invisible*

<sup>4</sup>The fact that gradable nouns can be modified by size adjectives (e.g. *big idiot*) provides even more evidence for their having a degree argument, as we will see when we discuss the analysis of size adjectival modification later in this chapter.



- a. Maxwell's pet elephant is almost/completely/virtually invisible.
- b. \*Maxwell's pet elephant is unbelievably/hugely/terribly invisible.

On the other hand, open-scale predicates show precisely the opposite pattern, as exemplified in (15):

- (15) *Open scale: tall, expensive, stupid*
- a. \*Vernon is almost/completely/virtually stupid.
  - b. Vernon is unbelievably/hugely/terribly stupid.

As we have seen, the nouns discussed by Morzycki (*idiot, nerd, soccer fan, airhead, goat cheese enthusiast, simpleton, Barbie doll lover, loser, weirdo...*) pattern with these open-scale adjectives:

- (16) a. \*Vernon is almost/completely/virtually an idiot.<sup>5</sup>  
 b. Vernon is a(n) unbelievable/huge/terrible idiot.

We conclude that nouns like *idiot* should be associated with an open rather than a closed scale - but from this, it follows (tracing the steps of our argumentation backwards) that the concepts they denote cannot have a prototype. This corresponds to our intuition about concepts like *bird* and *chair* versus concepts like *nerd, idiot* and *goat cheese enthusiast*: while we can quite easily define a prototype for *chair* - the most chair-like kitchen chair we can imagine - it is much harder to come up with a prototypical nerd. In fact, we will find that we can always come up with a nerd that is more nerdy than our putative prototype - someone whose IQ is ever so slightly higher, whose eyesight is just the tiniest bit worse, whose programming skills extend to just one more programming language. This means that perhaps the most crucial property of gradable nouns may be defined in terms of prototypes, or rather, lack thereof: gradable nouns denote concepts that lack a prototype.

Of course, this definition is incomplete as long as we cannot tell whether the reverse is also true: are *all* nouns that denote concepts without a prototype gradable?

First, note that there does seem to be a way to think of the concepts denoted by gradable nouns in terms of prototypicality. Take *genius*. There are many dimensions one can associate with genius - high IQ, natural talent for a particular art or science, excellence at a very young age, representing a turning point in

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<sup>5</sup>In some cases, the judgements are less clear; for example, both *virtually a sociopath* and *an unbelievable sociopath* are perfectly fine. But note that the sense in which *sociopath* is used in these constructions differs: in the first, a sociopath is defined in psychiatric terms as someone who meets a set of conditions (*idiot* used to have a similar use, in which case *almost an idiot* would have been perfectly acceptable as well). One can *almost* meet a certain set of conditions, hence one can be *almost* a sociopath. In the case of *an unbelievable sociopath* and the contemporary use of *idiot*, however, the term is used much more loosely, and can apply to anyone who, to some extent, possesses the characteristics we associate with sociopathy. It is as inappropriate to call a *sociopath* in the former, diagnostic sense *unbelievable* or *huge* as it is to say of a door that it is *unbelievably open*, or of someone paralysed to the neck that she is *enormously lame* or *a huge cripple* (which would be rude in addition to ungrammatical).

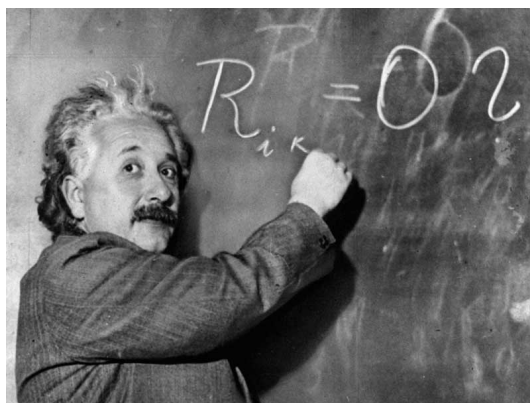


Figure 3.1: A prototypical genius?

the history of their field - and no matter which genius we pick, we can come up with someone who embodies these dimensions more. However, it should not be surprising if some particular geniuses spring more readily to mind than others (fig. 3.1), in a way that is hardly predictable from their ranking among their fellow geniuses.

This is reminiscent of a series of studies by Armstrong et al. (1983), who show that conceptual structure and exemplariness are two separate things. When asked to rate different even numbers for exemplariness of the *even number* category, subjects gave graded responses (favouring 2 and 4 over 34 and 806, for example), even though they all agreed that no even number could be ‘more’ or ‘less’ even than any other even number. In other words, category *exemplariness* may be graded, even if category *membership* is not. (So while Einstein may be an *exemplary* genius, this does not necessarily make him *prototypical*.)

The concept *even number* is an example of a definitional concept, which lacks a prototype. It is not gradable, so our above definition is not reversible. However, there is a clear difference between *genius* and *even number*: category membership is graded for the former, but clear-cut for the latter.

Thus, we have now identified two dimensions along which to classify the concepts denoted by nouns (existence of a prototype and gradedness of category membership). The first class is exemplified by nouns like *chair*, whose category membership is graded and which have a prototype. The second class is exemplified by nouns like *even number*, which have neither. The third class are our gradable nouns, whose category membership is graded but which do not have a prototype; this is the only class that we can demonstrate to be linguistically gradable (by monotonicity). The fourth logical possibility, concepts with clear-cut membership as well as a prototype, does not exist, as prototypicality only applies to categories with graded membership.

	prototype?	graded membership?	ling. gradable?
<i>chair</i>	y	y	?
<i>nerd</i>	n	y	y
<i>even number</i>	n	n	n

We can now refine our proposed definition of ‘gradable noun’: *a noun will be linguistically gradable iff it denotes a concept that a) is conceptually gradable (i.e. has graded membership), and b) lacks a prototype.* This definition assumes that Sassoon’s ‘gradable nouns’ - nouns like *bird* and *chair* - are, in fact, not linguistically gradable, in spite of their ability to occur with modifiers like *almost* and *virtually*. As far as I can tell, there is no decisive way to show that we are not dealing with some metalinguistic process here. But if one would wish to leave open the option that *chair* is also linguistically gradable, one might read the above definition as simply delimiting the kind of gradable noun I want to talk about in this thesis, and which I will henceforth always intend when talking about a ‘gradable noun’ - the ‘open-scale’ class of *idiot*, *nerd*, *soccer fan*, *airhead*, *goat cheese enthusiast*, *simpleton*, *Barbie doll lover*, *loser*, and *weirdo*.<sup>6</sup>

There is one final scale-related issue that I should mention before going on to the next section. Above, I suggested that gradable nouns necessarily map unto open scales, which is why they are incompatible with endpoint modifiers. Interestingly, though, Morzycki (2009) distinguishes between open- and closed-scale nouns *within* the class of gradable nouns, based on their ability to occur with *complete*: *a complete idiot/nerd* is possible, but *a complete goat cheese enthusiast* is not. So, does that mean that the *idiot* scale has an endpoint after all?

I would like to argue that the difference between *idiot/nerd* and *enthusiast* is in fact another one. *Complete* or *total* in *a complete/total nerd* do not really seem to refer to the endpoint of a scale, such that a *total nerd* could not possibly be more nerdy; rather, they carry a sense of having some property ‘in every respect’. Thus, a *total nerd* is someone who is nerdy with respect to his looks, social skills, intelligence, hobbies, in short, every dimension that we tend to associate with nerdiness. In contrast, whether someone can reasonably be called a *goat cheese enthusiast* or a *curling fan* really only depends on one dimension: their enthusiasm for goat’s cheese and curling. This analysis correctly predicts that nouns that can occur with *completely* also allow modification by a *with respect to* clause, while the opposite holds for nouns that cannot occur with *completely*:

- (17) a. Maxwell is a nerd with respect to his computer skills.  
b. Vernon is an idiot with respect to his political views.

<sup>6</sup>As far as I can tell, mass nouns derived from gradable adjectives - *wisdom*, *generosity*; cf. Nicolas (2004) - also fall under the definition. Indeed, they can be modified by evaluatives and size adjectives, resulting in a degree reading; this is impossible for ‘ordinary’ mass nouns like *beer* and *furniture*. I will not concern myself with mass nouns in this thesis (admittedly, because I thought of the issue too late to be able to study them properly) but the reader might want to bear them in mind.

- c. \*Mildred is a goat cheese enthusiast with respect to her fan club attendance.
- d. \*Herman is a Barbie doll lover with respect to the size of his collection.

The claim that *nerd* and *idiot* are not associated with a closed scale is further supported by the difference between the dialogues in (18a) and (18b):

- (18) a. ‘My grandmother went totally blind last year.’  
 - #‘That’s horrible. Do the doctors expect her to get even blinder?’
- b. ‘I can’t believe you’re dating Maxwell. He’s  $\left\{ \begin{array}{l} \text{a total nerd} \\ \text{totally nerdy} \end{array} \right\}$ ’,  
 - ‘Look who’s talking. Your boyfriend is even nerdier.’

If the *total(ly)* in (18b) were really the same as the *totally* in (18a), namely an endpoint modifier, the response in (b) would be just as infelicitous as that in (a). The fact that it is not shows that the two *totals* do not have the same function, and this in turn means that the fact that we can talk about someone being *totally nerdy* does not imply that the scale of nerdiness is actually closed. But this also means that *total(ly)* in *a total nerd* or *totally nerdy* is not actually a *degree* modifier - there is nothing ‘total’ or ‘complete’ about said individual’s degree of nerdiness. Rather, it modifies dimension.

## 3.2 Syntax and semantics of noun modification

In the previous section, we have concluded that gradable nouns are linguistically gradable - i.e. denote degree predicates - and that they are associated with open degree scales. We have also seen that they can be modified by much the same elements as gradable adjectives. In this section, we will look more closely at degree modification of nouns. Section 3.2.1 discusses degree modification by size adjectives, first presenting the analysis of Morzycki (2009) and then restating this analysis in terms of degree predicates rather than measure functions; once again, we will see the importance of monotonicity. Section 3.2.2 discusses degree modification by evaluative adjectives.

### 3.2.1 Degree modification by size adjectives

One (apparently universal) property of gradable nouns, as identified by Morzycki (2009), is that they can be modified by size adjectives like *big*, *huge*, and *enormous*, as in (19-19):

- (19) Vernon is a huge idiot.
- (20) a. Herman is een enorme idioot. (Dutch)  
 ‘Herman is an enormous idiot’

- b. Janez je velik ljubitelj živali. (Slovene)  
*John is big lover animals.GEN*  
 ‘John is a big animal-lover’
- c. Ani ma’aritz gadol shel habolshoi. (Hebrew)  
*I admirer big of the.bolshoi*  
 ‘I am a great admirer of The Bolshoi’
- d. John-wa oo-bakamono desu. (Japanese)  
*John-TOP big-fool is*  
 ‘John is a big fool’

It is not just certain well-established size adjectives that can modify degree, but any adjective - including neologisms made up for the occasion - as long as they predicate bigness. Adjectives that predicate smallness fail to result in a degree reading (following Morzycki, I use % to indicate that the degree reading is absent):

$$(21) \quad \% \text{Vernon is a } \left\{ \begin{array}{l} \text{small} \\ \text{tiny} \\ \text{diminutive} \end{array} \right\} \text{ idiot.}$$

Morzycki calls this the ‘Bigness Generalisation’. Another generalisation that holds crosslinguistically is the ‘Position Generalisation’, which states that degree readings of size adjectives are possible only in attributive (and not in predicative or postnominal) positions:

- (22) %That idiot is big.
- (23) a. Un gran idiota (Spanish)  
 ‘a great idiot’
- b. %Un idiota grande  
 ‘an idiot who is physically large’

Morzycki argues that size adjectives operate on degrees the same way measure phrases do: they both “predicate of a degree that it has a certain minimum size”. A measure phrase like *six feet*, in this view, takes a degree  $d$  and returns a truth value - in this case, 1 for all degrees equal to or greater than six feet, and 0 for all smaller degrees. Similarly, a size adjective like *big* takes a degree  $d$  and returns 1 if  $d$  is ‘big’ and 0 if it is not. This means that size adjectives like *big* are abstract enough to be able to measure the size of degrees themselves - which in turn means they must be flexible between functions of type  $\langle e, d \rangle$  and type  $\langle d, d \rangle$ . The latter, when applied to a similarly flexible form of POS (size adjectives, after all, are gradable and hence require degree morphology for their interpretation), results in a measure phrase of type  $\langle d, t \rangle$  - the same type as an ‘ordinary’ measure phrase like *six feet*.<sup>7</sup>

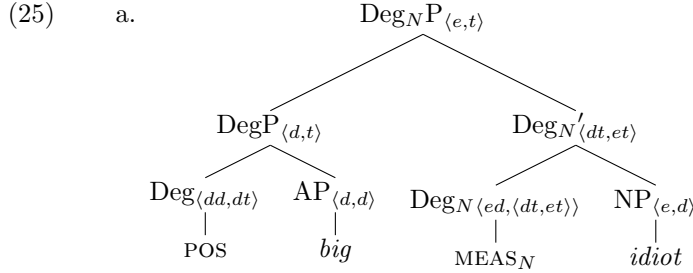
<sup>7</sup>In Chapter 1, we have not really bothered with the syntactosemantic details of measure phrases, following Kennedy (1997) and Svenonius & Kennedy (2006) in treating them simply

In line with this, it seems reasonable to propose a DegP for nominals that parallels adjectival constructions with a measure phrase and a degree head MEAS. However, there is an important semantic difference between *Vernon is six feet tall* and *Vernon is a big idiot*: the former does not entail the corresponding positive form, but the latter does. Morzycki remedies this by adjusting the denotation of  $\text{MEAS}_N$ , the nominal counterpart of MEAS, to include the function of POS:

$$(24) \quad \llbracket \text{MEAS}_N \rrbracket = \lambda G \lambda M \lambda x [\text{MIN}\{d : d \in \text{SCALE}(G) \wedge M(d)\} \leq G(x) \wedge s_G \leq G(x)]$$

(where  $M$  is a measure phrase consisting of a size adjective,  $\text{SCALE}(G)$  is the scale (ordered set of degrees) that comes with a particular gradable noun  $G$ , and  $\text{MIN}$  picks out the smallest degree on that scale that satisfies  $M$ )

For example, for *Vernon is a big idiot* to be true, Vernon's idiocy should be greater than or equal to the smallest degree on the *idiot* scale that can still be called 'big', and greater than or equal to the *idiot* standard. (25) shows how the denotation of *big idiot* is computed:



b.  $\llbracket \text{POS} \rrbracket = \lambda G \lambda d [s_G \leq G(d)]$   
 $\llbracket \text{POS } \textit{big} \rrbracket = \lambda d [s_{\textit{big}} \leq \text{BIG}(d)]$

$$\llbracket \text{MEAS}_N \textit{idiot} \rrbracket = \lambda M \lambda x [\text{MIN}\{d : d \in \text{SCALE}(\text{IDIOT}) \wedge M(d)\} \leq \text{IDIOT}(x) \wedge s_{\textit{idiot}} \leq \text{IDIOT}(x)]$$

like degrees. Thus, in *Vernon is six feet tall*, *six feet* denotes a particular degree of tallness which Vernon's height is stated to equal (or exceed). Morzycki, however, follows Schwarzschild (2005) in assuming that measure phrases are functions from degrees to truth values - in other words, predicates rather than arguments (Schwarzschild (2005) provides several arguments for this). This means that his version of MEAS looks different, too (note that both Kennedy and Morzycki treat gradable predicates as measure functions of type  $\langle e, d \rangle$ , which is a somewhat different approach from the one we have taken in the previous chapter):

(ii)  $\llbracket \text{MEAS} \rrbracket = \lambda A \lambda d \lambda x [d \leq A(x)]$  (Kennedy 1997)

(iii)  $\llbracket \text{MEAS} \rrbracket = \lambda A \lambda M \lambda x [\text{MIN}\{d : M(d)\} \leq A(x)]$  (Morzycki 2009)  
 (where  $M$  is a measure phrase and  $\text{MIN}\{d : M(d)\}$  yields the smallest degree that satisfies the measure phrase)

It should be clear that (ii) rules out the possibility of a direct parallel between measure phrases and size adjectives; there is no way we can analyse *big* and *enormous* as denoting degrees.

$$\llbracket [\text{POS } \textit{big}] \text{ MEAS}_N \textit{idiot} \rrbracket = \lambda x [\text{MIN}\{d : d \in \text{SCALE}(\text{IDIOT}) \wedge s_{\textit{big}} \leq \text{BIG}(d)\} \leq \text{IDIOT}(x) \wedge s_{\textit{idiot}} \leq \text{IDIOT}(x)]$$

How does this analysis account for the Position and Bigness Generalisations? The former is rather trivial: degree readings of size adjectives can be computed only from the above syntactic configuration. The latter follows from the present analysis in a way reminiscent of the monotonicity-related arguments we have seen earlier.

Consider the denotation of *small idiot*, computed along the same lines as (25b) above:

$$(26) \quad \llbracket [\text{POS } \textit{small}] \text{ MEAS}_N \textit{idiot} \rrbracket = \lambda x [\text{MIN}\{d : d \in \text{SCALE}(\text{IDIOT}) \wedge s_{\textit{small}} \leq \text{SMALL}(d)\} \leq \text{IDIOT}(x) \wedge s_{\textit{idiot}} \leq \text{IDIOT}(x)]$$

Thus, for an individual  $x$  to be a *small idiot*,  $x$ 's degree of idiocy should equal or exceed the smallest degree on the *idiot* scale (picked out by MIN) that satisfies the smallness standard  $s_{\textit{small}}$ . But the smallest degree on the *idiot* scale (which presumeably satisfies the smallness standard, or no degree would) is the same in every case:  $d_0$ , the minimum of the *idiot* scale, which corresponds to a complete lack of idiocy. This means that *any* degree of idiocy equals or exceeds this - in other words, *x is a small idiot* is trivially true whenever *x is an idiot* is true. Because the size adjective does not make any semantic contribution on a degree reading, the rules of pragmatics dictate that we should choose the reading on which it does, and interpret *small idiot* as a literal assertion about said idiot's physical size.<sup>8</sup> It can easily be verified that this is a property of all size adjectives predicating smallness.

One question remains. In the previous chapter, we have based our analysis of EDCs on the assumption that gradable adjectives denote functions from degrees to properties; the alternative, in which gradable adjectives denote measure functions, was shown not to work. My analysis of nominal EDCs (in the next section) will therefore again be based on  $\langle d, \langle e, t \rangle \rangle$ -type predicates. Obviously, a uniform analysis of size and evaluative adjectival modification would be preferable over one that has size adjectives modifying measure functions and evaluative adjectives modifying degree predicates. We may therefore wonder whether it is possible to convert the analysis of degree modification by size adjectives, as outlined above, to a degree predicate-based approach.

In fact, this conversion is pretty straightforward. First, let's see what the type and denotation of MEAS should be in a  $\langle d, \langle e, t \rangle \rangle$ -type approach. Arguably, it should largely parallel the semantics of POS - the principal difference between POS and MEAS being that POS compares the degree to which an individual  $x$  has some property  $G$  to the standard of  $G$ , while MEAS compares it to an overtly expressed measure. (27) shows the denotation of POS:

<sup>8</sup>Alternatively, we may want to claim that the *idiot* scale, like for example the scales of height, weight and age, does not have a minimum, but asymptotically approaches zero (cf. section 1.1.4). In that case, the computation of the value of  $\llbracket \textit{small idiot} \rrbracket$  would fail because the MIN operator would be unable to return a degree.

$$(27) \quad \llbracket \text{POS} \rrbracket_{\langle \langle d, et \rangle, \langle et \rangle \rangle} = \lambda G \lambda x \exists d [G(d)(x) \wedge d \geq s_G]$$

In the case of MEAS, the comparison value (which we will call  $d'$ ) is not computed on the spot based on contextual information (like  $s_G$ ), but is supplied later in the derivation, by a measure phrase. This means we need an additional lambda-abstraction over  $d'$ , and a corresponding type adjustment:

$$(28) \quad \llbracket \text{MEAS} \rrbracket_{\langle \langle d, et \rangle, \langle d, et \rangle \rangle} = \lambda G \lambda d' \lambda x \exists d [G(d)(x) \wedge d \geq d']$$

However, note that this denotation of MEAS does not allow us to draw Morzycki's parallel between size adjectives and measure phrases, as it calls for an argument of type  $d$  - something that, unless we propose some exotic function from size adjectives to degrees (but what would something like that even *mean*, without a particular scale to refer to?), a size adjective simply cannot be or become. One alternative would be to raise the type of the measure phrase from  $d$  to  $\langle \langle d, et \rangle, \langle et \rangle \rangle$ , but it is still unclear how we could arrive at such a type (starting out with a size adjective of type  $\langle d, \langle e, t \rangle \rangle$ ) without hugely complicating things. So we will adopt Morzycki's suggestion, based on Schwarzschild (2005), that measure phrases are functions from degrees to truth values (exactly how to derive this type from a numeral or quantifier phrase like *six feet* or *several years* remains an open question). The denotation of MEAS now looks like the following:

$$(29) \quad \llbracket \text{MEAS} \rrbracket_{\langle \langle d, et \rangle, \langle dt, et \rangle \rangle} = \lambda G \lambda M \lambda x \exists d [G(d)(x) \wedge M(d)]$$

(where  $M$  is a measure phrase and  $G$  a gradable adjective)

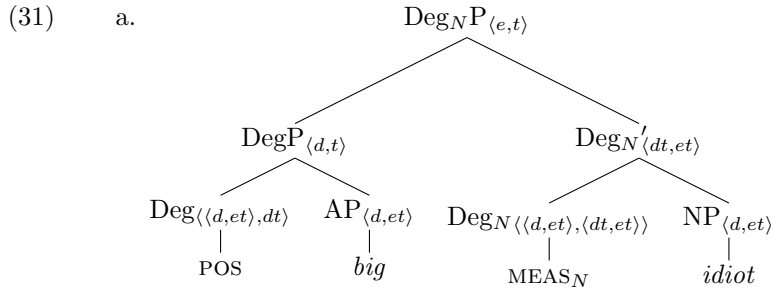
This denotation lacks the MIN operator we saw earlier, but as we will see, its effect - of making *x is a small idiot* and the like trivially true - will here be taken over by the monotonicity of the size adjective. Neither does it need an explicit equivalent of the requirement that  $d \in \text{SCALE}(G)$ : in the present approach, this follows naturally from the fact that  $d$  is an argument of the predicate  $G$ .

As before,  $\llbracket \text{MEAS}_N \rrbracket$ , which is used with nominal degree predicates, needs to entail the positive form:

$$(30) \quad \llbracket \text{MEAS}_N \rrbracket_{\langle \langle d, et \rangle, \langle dt, et \rangle \rangle} = \lambda G \lambda M \lambda x \exists d [G(d)(x) \wedge d \geq s_G \wedge M(d)]$$

(where  $M$  is a graded size adjective of type  $\langle d, t \rangle$ , and  $G$  a gradable noun)

Here, then, is how the semantics of *big idiot* is derived in the translated version of Morzycki's analysis:





$$\text{b. } \llbracket \text{POS } \textit{big} \rrbracket = \lambda x \exists d' [\text{BIG}(d')(x) \wedge d' \geq s_{\textit{big}}]$$

$$\llbracket \text{MEAS}_N \textit{idiot} \rrbracket = \lambda M \lambda x \exists d [\text{IDIOT}(d)(x) \wedge d \geq s_{\textit{idiot}} \wedge M(d)]$$

$$\llbracket \llbracket \text{POS } \textit{big} \rrbracket \text{ MEAS}_N \textit{idiot} \rrbracket = \lambda x \exists d [\text{IDIOT}(d)(x) \wedge d \geq s_{\textit{idiot}} \wedge \exists d' [\text{BIG}(d')(d) \wedge d' \geq s_{\textit{big}}]]$$

The Position Generalisation is accounted for in the same way as before. The Bigness Generalisation, however, now follows from the monotonicity of the size adjective. Recall that by our definition of monotonicity, if an individual  $x$  has some property to a degree  $d$ , it also has this property to all lower degrees  $d' \leq d$ . This means that  $x$  is  $d$ -big is true for every  $x$  whose degree of bigness equals or exceeds  $d$ . Similarly,  $x$  is  $d$ -small is true for every  $x$  as small as, or smaller than,  $d$  indicates. (32) shows the denotation of  $x$  is a small idiot:

$$(32) \quad \llbracket \llbracket \text{POS } \textit{small} \rrbracket \text{ MEAS}_N \textit{idiot} \rrbracket = \lambda x \exists d [\text{IDIOT}(d)(x) \wedge d \geq s_{\textit{idiot}} \wedge \exists d' [\text{SMALL}(d')(d) \wedge d' \geq s_{\textit{small}}]]$$

This is true if (a)  $x$  is an idiot, and (b) the degree  $d$  to which  $x$  is an idiot is  $d'$ -small. The latter is true if there is *some* degree  $d'$  that satisfies the smallness standard for which it holds that  $\text{SMALL}(d')(d)$ . But this means that our (b)-requirement can be fulfilled by any  $d \geq d'$ . Because the smallness scale has a maximum that asymptotically approaches zero (a size of zero means not having a size at all, so it cannot be included on any linguistic scale that measures size), *every* degree on the smallness scale is equalled or exceeded by some other degree. So no matter how high up on the smallness scale  $d'$  is, there will always be a higher  $d$  available.

Now, let's assume that  $d$  is infinitely high - which, in this case, corresponds to infinite smallness. We can now prove that this degree - which must necessarily satisfy our (b)-requirement - exists whenever  $\exists d [\text{IDIOT}(d)(x) \wedge d \geq s_{\textit{idiot}}]$  is true, and thus that (b) is trivially satisfied. To see why this is so, consider the fact that *idiot* is monotone as well. Therefore, every  $x$  that is idiotic to some degree  $d''$ , is also idiotic to all lower degrees  $d'$ , *up to the infinitely smallest degree  $d$* . This means that  $\text{IDIOT}(d)(x)$  is, indeed, always true. Just as before,  $x$  is a small idiot is true whenever  $x$  is an idiot is true, which makes the addition of *small* semantically vacuous on a degree reading.

In short, the Bigness Generalisation holds because both the gradable predicate and the size adjective are monotone. Again, just as before, the above proof can be generalised to all size adjectives  $M$  whose scale is ordered such that degrees high on the  $G$ -scale correspond to degrees low on the  $M$ -scale, which is true for any adjective that predicates smallness: more idiocy, for example, obviously means a less small degree of idiocy.

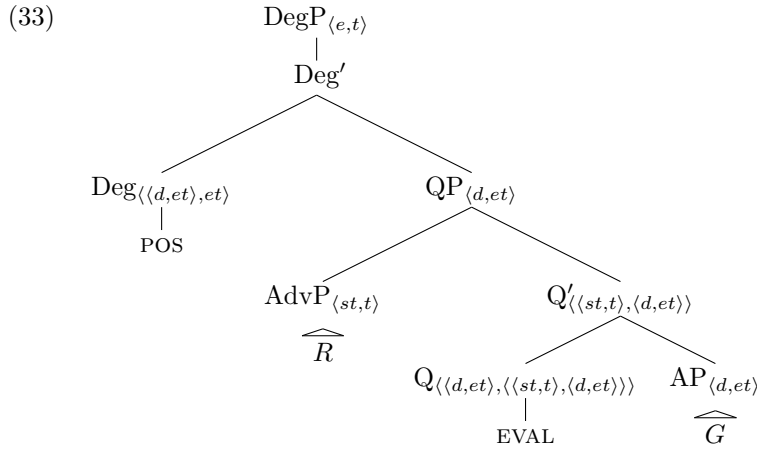
To summarise, degree modification by size adjectives can be analysed on a par with measure phrase modification. To make this work, we have to assume both measure phrases and graded size adjectives are functions from degrees to truth values (Schwarzschild 2005, Morzycki 2009, Corver 2009). The degree

morpheme at work, in both cases, is MEAS; when gradable nouns rather than adjectives are concerned, MEAS needs to incorporate the denotation of POS as well.

The approach can be formalised more or less equally well based on either measure phrases ( $\langle e, d \rangle$ ) or degree predicates ( $\langle d, \langle et \rangle \rangle$ ). There are a few technical differences between the two analyses; one could argue that the measure phrase analysis has to specify explicitly what follows more naturally from existing assumptions in a degree predicate analysis. In both cases, the Position Generalisation is rather trivially accounted for by the fact that the semantic computation necessary for a degree reading can only take place in a particular syntactic configuration. The Bigness Generalisation is dealt with in slightly distinct ways, but the idea behind them is essentially the same.

### 3.2.2 Degree modification by evaluative adjectives

Below, the syntax and semantics of Evaluative Degree Constructions (EDCs) as argued for in Chapter 2 are repeated:



where  $R$  is an evaluative adverb,  $G$  a gradable adjective, and

$$(34) \quad \llbracket \text{EVAL} \rrbracket = \lambda G \lambda R \lambda d \lambda x [G(d)(x) \wedge R(\hat{G}(d)(x))]$$

Our zero hypothesis is that the evaluative degree modification of nouns has precisely the same structure, with the adjective in the Spec of QP and the NP as the complement of EVAL. In principle, this could work fine: gradable nouns have the same type as gradable adjectives, and, following Morzycki (2004), evaluative adjectives and adverbs have identical denotations. Any explanation of the behaviour of evaluatives in combination with other elements can straightforwardly be extended to nominal EDCs. For example, the possibility of having both a size adjective and an (evaluative) modifier is ruled out by the same requirement that rules out the modification of a gradable adjective by both an evaluative and a measure phrase, as in (35b):

- (35) a. \*Vernon is six feet incredibly tall.  
 b. %Vernon is a huge unbelievable idiot.

Even having an AP in the specifier position (of some functional projection on top of NP) is not unusual: Cinque (1994) argues that this analysis of attributive APs is to be preferred over one that treats them as adjuncts to DP or NP.<sup>9</sup> This also suggests that degree and non-degree readings of EDCs may have a largely identical syntactic structure.

There is a potential problem here. The reader may recall that it was argued in section 2.3.3, following Corver (1997b), that Dutch gender agreement between adverb and adjective is only possible when these elements stand in a Spec-Head relation to each other; when EVAL interferes between them, there is no gender agreement. In line with this, we should expect a lack of gender agreement between adjective and noun in Dutch nominal EDCs - semantically, EVAL *has* to interfere between the adjective and the noun, or we would end up with a type mismatch. Contrary to this expectation, however, adjective and noun obligatorily agree in gender:

- (36) a. Een ongelofelijk- $\emptyset$  kreng  
 ‘an unbelievable-NEUT bitch’  
 b. Een ongelofelijk-e sukkel  
 ‘an unbelievable-NONNEUT loser’

Trying to find a solution for this apparent contradiction requires venturing deep into syntactic terrain, in particular more recent Minimalist literature on approaches to agreement like Move-F (cf. Chomsky 1995) or Agree (cf. Chomsky 2004, Schoorlemmer 2009), and the debates still surrounding it; see for example Corver (2006) for a more recent and syntactically much more complicated account of adverb-adjective (‘proleptic’) agreement in Dutch adjectival DegPs. I have decided not to go into this here, as it would likely double or triple the length of this chapter. My suggestion, which may or may not hold up under further syntactic scrutiny, is that the agreement difference between adjectival and nominal EDCs has something to do with the fact that valuation of the gender feature is optional in adverbs, but obligatory in (attributive) adjectives; thus, adjectives may force covert movement of the noun’s gender features (under a Move-F approach) to some functional projection where Spec-Head agreement can take place, while a similar operation in adjectival EDCs would be ruled out by economy considerations.<sup>10</sup>

A more relevant problem with our putative Deg<sub>N</sub>P is that there is no reason why Deg<sub>N</sub><sup>0</sup> should select a QP complement. Recall that in the adjectival DegP, Q<sup>0</sup> may contain morphemes like *more*, *less*, *-er* and the dummy *much*. None of these has a direct counterpart in the Deg<sub>N</sub>P: comparatives involving gradable

<sup>9</sup>Thanks to Coppe van Urk for bringing Cinque’s view to my attention, and also for linking me to Corver (2006).

<sup>10</sup>I am not sure how to formulate this in terms of the Probes and Goals of the more recent Agree approach, but according to Hornstein et al. (2005:9), the empirical coverage of the two approaches is the same.

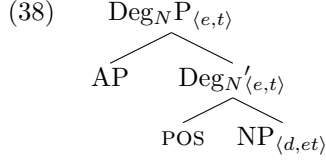
nouns require a pseudopartitive, like *more of an idiot* and *less of an elephant lover*.<sup>11</sup> Furthermore, while certain degree modifiers, like *rather* and *quite*, can combine with gradable nouns (*Vernon is rather/quite an idiot*), they are clearly not located inside  $\text{Deg}_N\text{P}$ , as shown by the intervention of the determiner. This suggests that the usual position for degree modifiers,  $\text{SpecQP}$ , is unavailable. In short, it is reasonable to assume that the QP projection is absent from  $\text{Deg}_N\text{P}$ . But this renders  $\text{EVAL}$  homeless, too.

Finally, we may wonder to what extent the degree reading and the intersective, non-degree reading of EDCs are based on the same syntactic structure. Speaking purely in terms of linear order,  $\text{POS-AP-EVAL-NP}$  would result in a degree reading, and  $\text{AP-POS-NP}$  in a non-degree reading (if we assume Heim & Kratzer's Predicate Modification rule (Heim & Kratzer 1998), an intersective interpretation is only possible when both adjective and noun are of type  $\langle e, t \rangle$ ; this means that the noun must be 'graded' by degree morphology before it is combined with the adjective). Do either  $\text{POS}$ ,  $\text{AP}$ , or both occupy the same position here, or are we talking about two completely different structures? And, a related issue, to what extent does the structure of EDCs parallel the structure of degree modification by size adjectives? From a conceptual point of view, proposing a single  $\text{Deg}_N$  structure that can account for both kinds of modification and both the degree and non-degree readings is to be preferred over having three or four different analyses. Also, there is no syntactic evidence that they should be structured differently; for instance, both degree and non-degree readings show precisely the same agreement patterns in Dutch, and more complicated degree constructions - like comparatives - show that evaluatives and size adjectives can appear in precisely the same configurations:

- (37) a. Maxwell is a  $\left\{ \begin{array}{l} \text{bigger} \\ \text{more unbelievable} \end{array} \right\}$  animal lover than Vernon.
- b. Vernon is as  $\left\{ \begin{array}{l} \text{big} \\ \text{unbelievable} \end{array} \right\}$  an animal lover as Maxwell is.
- c. Maxwell is a hugely unbelievable animal lover.
- d. Maxwell is an unbelievably huge animal lover.

The simplest way of analysing all the aforementioned forms of noun and degree modification on a par, in fact, immediately becomes clear when we match their ingredients with the available positions inside  $\text{Deg}_N\text{P}$ . What is important here is that there is no QP; our  $\text{Deg}_N$  directly selects the NP as its complement, which leaves us with only one available head position for degree morphology -  $\text{Deg}^0$  - and one available specifier position for the AP -  $\text{SpecDegP}$ . This straightforwardly accounts for the intersective interpretations of both size and evaluative modification:

<sup>11</sup>These quantifiers *can* be used with mass nouns, but that is a different situation.



(39) shows the semantic derivation of the non-degree reading of *terrible idiot* (abstracting over the fact that *terrible* itself is a DegP). The literal size reading of constructions like *big idiot* is derived in precisely the same way.

(39)  $\llbracket \text{terrible POS idiot} \rrbracket$

$$\begin{aligned}
&= \lambda G \lambda x \exists d [G(d)(x) \wedge d \geq s_G] (\llbracket \text{idiot} \rrbracket) (\llbracket \text{terrible} \rrbracket) \\
&= \lambda G \lambda x \exists d [G(d)(x) \wedge d \geq s_G] (\lambda d \lambda x [\text{IDIOT}(d)(x)]) (\llbracket \text{terrible} \rrbracket) \\
&= \lambda x \exists d [\text{IDIOT}(d)(x) \wedge d \geq s_{\text{idiot}}] (\llbracket \text{terrible} \rrbracket) \\
&= \lambda x \exists d [\text{IDIOT}(d)(x) \wedge d \geq s_{\text{idiot}}] (\lambda x [\text{TERRIBLE}(x)]) \\
&= (\text{by Predicate Modification}) \lambda x [\text{TERRIBLE}(x) \wedge \exists d [\text{IDIOT}(d)(x) \wedge d \geq s_{\text{idiot}}]]
\end{aligned}$$

In line with our non-degree interpretation of *terrible idiot*, this asserts of some individual  $x$  that  $x$  is both terrible and an idiot.

Note that this is in fact the exact same structure assumed in section 3.2.1 for degree modification by size adjectives (with POS replaced by MEAS, obviously), so we have that one covered as well. This leaves only the degree interpretation of nominal EDCs. This one is less straightforward, as it supposedly contains two heads (POS and EVAL), but there is only one head position available between AP and NP. Adding a projection headed by POS on top of our  $\text{Deg}_N\text{P}$  would lead to the right semantics, but conceptually there would be something not quite right about it (cf. section 1.1.2) - why two DegPs on top of each other when we are so clearly dealing with a single degree construction?

I therefore propose that  $\text{EVAL}_N$  needs to incorporate the denotation of POS - perhaps not coincidentally parallelling the difference between MEAS and  $\text{MEAS}_N$  discussed earlier. This results in a  $\text{Deg}'_N$  of type  $\langle\langle st, t \rangle, \langle et \rangle\rangle$ , rather than  $\langle e, t \rangle$ , so an intersective interpretation via PM is impossible. Hence, the evaluative adjective is interpreted as a propositional modifier<sup>12</sup>, enabling the correct derivation:

(40) a.  $\llbracket \text{EVAL}_N \rrbracket = \lambda G \lambda R \lambda x \exists d [G(d)(x) \wedge d \geq s_G \wedge R(\hat{G}(d)(x))]$

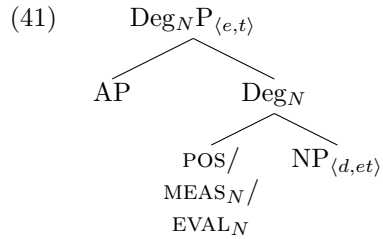
b.  $\llbracket \text{terrible EVAL idiot} \rrbracket$

$$\begin{aligned}
&= \lambda G \lambda R \lambda x \exists d [G(d)(x) \wedge d \geq s_G \wedge R(\hat{G}(d)(x))] (\llbracket \text{idiot} \rrbracket) (\llbracket \text{terrible} \rrbracket) \\
&= \lambda G \lambda R \lambda x \exists d [G(d)(x) \wedge d \geq s_G \wedge R(\hat{G}(d)(x))] (\lambda d \lambda x [\text{IDIOT}(d)(x)]) (\llbracket \text{terrible} \rrbracket) \\
&= \lambda R \lambda x \exists d [\text{IDIOT}(d)(x) \wedge d \geq s_{\text{idiot}} \wedge R(\hat{\text{IDIOT}}(d)(x))] (\llbracket \text{terrible} \rrbracket) \\
&= \lambda R \lambda x \exists d [\text{IDIOT}(d)(x) \wedge d \geq s_{\text{idiot}} \wedge R(\hat{\text{IDIOT}}(d)(x))] (\lambda p [\text{TERRIBLE}(p)]) \\
&= \lambda x \exists d [\text{IDIOT}(d)(x) \wedge d \geq s_{\text{idiot}} \wedge \lambda p [\text{TERRIBLE}(p)] (\hat{\text{IDIOT}}(d)(x))] \\
&= \lambda x \exists d [\text{IDIOT}(d)(x) \wedge d \geq s_{\text{idiot}} \wedge \text{TERRIBLE}(\hat{\text{IDIOT}}(d)(x))]
\end{aligned}$$

<sup>12</sup>I am leaving the details of this aside. See Morzycki (2004) for some suggestions as to how the individual- and proposition-modifying uses of evaluative adjectives may be related.

### 3.3 Conclusion

In this chapter, I have compared Morzycki’s (2009) analysis of size adjectival degree modification with the previous chapter’s analysis of evaluative degree modification involving EVAL and a propositional modifier. From this,  $\text{Deg}_N\text{P}$  has emerged as a relatively simple structure with room for one degree head and one modifier (in Spec):



$\text{MEAS}_N$  and  $\text{EVAL}_N$  differ from their counterparts in the adjectival  $\text{DegP}$  in incorporating the denotation of POS.

Moreover, in a slightly more speculative argument, I have established a three-way distinction between concepts denoted by nouns. The class of concepts that corresponds to the class of nouns that is linguistically gradable is a) conceptually gradable, i.e. has fuzzy category membership, and b) lacks a prototype that embodies the concept’s dimensions more than any other member of the category. The linguistic gradability of this class (which contains nouns like *idiot*, *nerd*, *fan*, *psychopath*, *enthusiast*, and *weirdo*) was demonstrated by showing that they are subject to monotonicity-related phenomena.

## Chapter 4

# Suggestions and further issues

In this final chapter, I would like to open discussion on two issues that came up while I was writing this thesis.

In section 4.1, I will present data from several languages that suggest that the class of evaluative adjectives that cannot modify degree in nouns is strikingly similar across languages, which shows that an analysis of evaluative degree modification might not be entirely complete without a deeper investigation into the lexical semantics of evaluatives.

Secondly, in section 4.2 I will return to verbs like *appreciate*, briefly mentioned in the introduction, and argue that there are several reasons to assume that the class of gradable predicates includes verbs as well.

### 4.1 Evaluative modifiers across languages

In English, all evaluative adverbs seem to be able to function as degree modifiers; the class of evaluative adjectives that can do so, however, is much smaller. Compare for example the sentences in (42) with those in (43):

- (42) a. Maxwell is unbelievably nerdy.  
b. Maxwell is an unbelievable nerd.
- (43) a. Maxwell is  $\left\{ \begin{array}{l} \text{surprisingly} \\ \text{unexpectedly} \\ \text{abnormally} \end{array} \right\}$  nerdy.  
b. %Maxwell is a(n)  $\left\{ \begin{array}{l} \text{surprising} \\ \text{unexpected} \\ \text{abnormal} \end{array} \right\}$  nerd.

The degree reading is present in (43a), but, puzzlingly, absent in (43b). The class of adjectives that behave like *unbelievable* - i.e. result in a degree reading -

includes *unbelievable*, *unimaginable*, *extraordinary*, and, depending on the context<sup>1</sup>, *terrible*, *amazing*, and *insane*, among others. The class of adjectives that behave like *surprising* includes *unexpected*, *bizarre*, *unacceptable*, and *abnormal*.

Why should this difference exist? There are two possible hypotheses: the first is that we are dealing with some historical coincidence that makes it possible for some adjectives to modify degree, but not for others. The difference between *unbelievable* and *surprising* would then simply be a quirk of English. The second hypothesis is that there is some inherent semantic difference between *unbelievable*- and *surprising*-type adjectives that lies at the root of their behaviour as modifiers. In this case, we would expect similar adjectives in other languages to pattern with their English counterparts. Of course, a combination of the two hypotheses is possible as well: for some adjectives, their behaviour could be idiosyncratic, while for others it could reflect some fundamental semantic property and hence hold crosslinguistically.

In the following section, I present data from eight different languages that show that, while the behaviour of many evaluative modifiers seems indeed language-specific, the crosslinguistic equivalents of *surprising* and *unexpected* are, almost without exception, unable to modify degree. While more research is obviously necessary (nine languages is hardly a representative sample), this strongly suggests that the ability of these adjectives to modify degree should, somehow, be sought in their semantics.

#### 4.1.1 Data

The data presented in this section were elicited by means of a questionnaire, which is included as Appendix A (the exceptions are Norwegian and Swedish, for which I used a simpler questionnaire, asking only after a small set of specific evaluatives). With the exception of Dutch, the data for each language were provided by a single informant. For each language, two examples are included: one in which the construction has a degree reading, and one in which it has not.

- (44) a. *Degree reading:* (Dutch)  
       Kees-Jan is een onvoorstelbaar genie.  
       ‘Kees-Jan is an unimaginable genius’
- b. *No degree reading:*  
       Kees-Jan is een verrassende dikkerd.  
       ‘Kees-Jan is a surprising fat.person’
- c. Other modifiers that result in a degree reading: *ongelofelijk* ‘unbelievable’, *onvoorstelbaar* ‘unimaginable’, *vreselijk/verschrikkelijk* ‘terrible’
- d. Other modifiers that fail to result in a degree reading: *onverwacht* ‘unexpected’, *idiot* ‘insane’, *abnormaal* ‘abnormal’

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<sup>1</sup>Cf. section 4.1.2



- (45) a. *Degree reading:* (Swedish)  
 Justin är en otrolig knäppis.  
 ‘Justin is an unbelievable weird.person’  
 b. *No degree reading:*  
 Justin är en överraskande knäppis.  
 ‘Justin is a surprising weird.person’
- (46) a. *Degree reading:* (Norwegian)  
 Justin er en fryktelig raring.  
 ‘Justin is a terrible weirdo’  
 b. *No degree reading:*  
 Justin er en overraskende raring.  
 ‘Justin is a surprising weirdo’
- (47) a. *Degree reading:* (French)  
 Cette pice fut un incroyable succès.  
 ‘This play was an incredible success’  
 b. *No degree reading:*  
 Marie est une passionne de tricot anormale.<sup>2</sup>  
*Marie is an enthusiast of knitting abnormal*  
 ‘Marie is an abnormal knitting enthusiast’  
 c. Other modifiers that result in a degree reading: *fou/folle* ‘insane’,  
*poufantable* ‘dreadful’, *stupfiant* ‘amazing’, *surprenant* ‘surprising’,  
*impossible*, *incompréhensible*, *inimaginable*, *extra-ordinaire*, *remar-*  
*quable*  
 d. Other modifiers that fail to result in a degree reading: *inattendu*  
 ‘unexpected’, *effrayant* ‘frightening’, *horrible*, *bizarre*, *abnormal*
- (48) a. *Degree reading:* (Slovene)  
 Jaka je neverjeten idiot.  
*Jake is unbelievable idiot*  
 ‘Jake is an unbelievable idiot’  
 b. *No degree reading:*  
 Jaka je presenetljiv/nepričakovan idiot.  
*Jake is surprising/unexpected idiot*  
 ‘Jake is a surprising/unexpected idiot’  
 c. Other modifiers that result in a degree reading: *neverjeten* ‘unbe-  
*lievable*, *izjemen* ‘exceptional’, *strašen* ‘horrific’
- (49) a. *Degree reading:* (Mandarin)

<sup>2</sup>But note that the Position Generalisation predicts that a degree reading would not be possible at all with this word order, regardless of the evaluative modifier used.

John shi<sub>4</sub> ge nan<sub>2</sub>yi<sub>3</sub>xiang<sub>3</sub>xiang<sub>4</sub>de ben<sub>4</sub>dan<sub>4</sub>.  
*John is CL unimaginable idiot*  
 ‘John is an unimaginable idiot’ (degree reading)

b. *No degree reading:*

John shi<sub>4</sub> ge shi<sub>1</sub>qu<sub>4</sub>li<sub>3</sub>zhi<sub>4</sub>de ben<sub>4</sub>dan<sub>4</sub>.  
 John is CL insane idiot  
 ‘John is an idiot that he lost his mind’

c. Other modifiers that result in a degree reading: *nan<sub>2</sub>yin<sub>3</sub>zhi<sub>4</sub>xin<sub>4</sub>de* ‘unbelievable’, *nan<sub>2</sub>yi<sub>3</sub>xiang<sub>3</sub>xiang<sub>4</sub>de* ‘unimaginable’, *bu<sub>4</sub>ke<sub>3</sub>si<sub>1</sub>yi<sub>4</sub>de* ‘incredible’, *wu<sub>2</sub>fa<sub>3</sub>li<sub>2</sub>jie<sub>3</sub>de* ‘incomprehensible’

d. Other modifiers that fail to result in a degree reading: *bu<sub>2</sub>zheng<sub>4</sub>chang<sub>2</sub>de* ‘abnormal’, *fei<sub>1</sub>fan<sub>2</sub>de* ‘extraordinary/remarkable’, *ling<sub>4</sub>ren<sub>2</sub>jing<sub>1</sub>ya<sub>4</sub>de* ‘surprising’, *wu<sub>2</sub>fa<sub>3</sub>yu<sub>4</sub>liao<sub>4</sub>de* ‘unexpected’, *ke<sub>3</sub>pa<sub>4</sub>de* ‘horrible’, *emphkong<sub>3</sub>bu<sub>4</sub>de* ‘dreadful’, *ling<sub>4</sub>ren<sub>2</sub>jing<sub>1</sub>qi<sub>2</sub>de* ‘amazing’

(50) a. *Degree reading:* (Japanese)

Tom-wa namihazureta tensai desu.  
*Tom-TOP extraordinary genius is*  
 ‘Tom is an extraordinary genius’

b. *No degree reading:*

Tom-wa kikaina yakyuu aikooka desu.  
*Tom-TOP bizarre baseball fan is*  
 ‘Tom is a bizarre baseball fan.’

c. Other modifiers that result in a degree reading: *odorokubeki* ‘amazing’

(51) a. *Degree reading:* (Hebrew)

hu idiot yotze dofen  
*he idiot out.of frame*  
 ‘He’s an extraordinary idiot’

b. Other modifiers that result in a degree reading: ‘impossible’, ‘extraordinary’ (~‘out of frame’)<sup>3</sup>

c. Other modifiers that fail to result in a degree reading: ‘surprising’, ‘unexpected’ (~‘not predictable’), ‘dreadful’, ‘frightening’, ‘amazing’

#### 4.1.2 Some tentative conclusions

**Positive and negative meanings.** As can be seen in the data above, adjectives whose meaning is either very positive or very negative (like *amazing*, *horrible* or *dreadful*) show very mixed behaviour across languages. In Dutch, for example, *horrible*-like adjectives can quite easily modify degree, losing their

<sup>3</sup>My informant provided these adjectives only in Hebrew script, so I will give just the translation.

negative connotation (for example, it is perfectly possible to call oneself a *verschrikkelijke balletliefhebber* ‘horrible ballet-lover’) without implying that there is anything particularly horrible about loving ballet. The opposite picture emerges in Mandarin Chinese, in which, according to my informant, adjectives like *horrible* and *dreadful* cannot modify degree in nouns because “they cannot be used metaphorically” - their use always implies a negative judgement, which apparently blocks a degree reading somehow. However, they are all perfectly able to modify degree in adverbial form, in which they turn into ‘metaphors’ for very high degrees, just as in Dutch.

Similar observations are made by Paradis (2000), who argues that *terrible* and its kin have undergone a historical process from propositional modifiers to *reinforcers*, “[t]hat is, they have lost their propositional content and become exponents of an abstract notion of degree. (...) The reinforcing reading (...) is characterized by a conceptualization where the gradable mode of construal is in the foreground almost to the exclusion of the content domain. (...) [The adjectives] have developed into unbounded markers of HIGH DEGREE.”

In other words, there seems to be a crosslinguistic correlation between the availability of a degree reading and the possibility to interpret the adjective neutrally. This may even vary between individuals: in spite of Paradis’s observations about adjectives like *terrible*, some of the native English speakers I consulted were unable to get a degree reading for *terrible nerd* because they “regarded being nerdy as a positive thing”.

Is this correlation really there, and if so, why would it exist? Why does it matter with gradable nouns, but not with adjectives?

***Surprising and unexpected.*** While other specific evaluatives do not really show a cross-linguistic pattern, *surprising* and *unexpected* seem to be generally unable to modify degree (one exception is French *surprenant*; for Japanese, I sadly do not have the relevant data). Although the sample is tiny and the observation might, theoretically, be due to chance, I feel it is at least suggestive enough to merit further investigation.

At the moment, I do not have an explanation of what would make *surprising* and *unexpected* different from other evaluatives. They seem more readily gradable; a Forestle<sup>4</sup> search makes clear that 8.9% of the occurrences of *surprising* and 2.4% of the occurrences of *amazing* are graded by either *very*, *extremely*, *rather*, *surprisingly*, *a bit*, or *incredibly*, against on average 0.9% of the occurrences of *unbelievable*, *incredible*, *unimaginable*, *impossible* and *extraordinary*. But this might be a consequence rather than a cause: as was suggested above, the ability to modify degree seems to go hand in hand with a certain neutral, ‘abstract’ interpretation, and modifying degree in such an abstract modifier may quickly get too complicated or costly to interpret.

The above observations suggest that the lexical semantics of evaluatives is important to their ability to modify degree in several ways. However, they also

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<sup>4</sup>A Yahoo-based search engine that saves a tiny patch of rainforest with every search.

touch upon the much broader issue of the difference between adverbs and adjectives: while many evaluative adjectives, across languages, are unable to modify degree in nouns, we have yet to see an evaluative adverb that cannot modify degree. Could the fact that  $\text{Deg}_{NP}$  seems to be much less sophisticated than its adjectival equivalent play some role in drawing out small lexical distinctions between different evaluatives? If so, how?

## 4.2 Gradable verbs

In the introduction (section 1.1), we briefly considered the following sentence:

- (52) Maxwell appreciates jazz more than Vernon.

There clearly seems to be something ‘gradable’ about the verb *appreciate*, in the sense that it is a predicate that can apply to an individual to a smaller or larger extent. But is it actually gradable in the sense relevant here, i.e. that of having a degree argument?

According to Kennedy & McNally (2005), the degree scale structure of verbal adjectives (*much appreciated*, *very surprised*, *well understood*) derives from certain semantic properties of the verb; its event structure determines the adjective’s scale structure, and the various ways in which appreciation, surprise and understanding can be measured determine the scale’s dimension:

For example, arguably the most natural reading of *much admired* is paraphrasable as *admired by many people*, without necessarily entailing that the admiration has been long lasting; at the same time, a *much talked about program* might well be one that has been talked about many times, though not necessarily by many different people or for a particularly long time on any given occasion. Adjectives denoting the property of being the object of an emotion, such as *admired*, *loved*, or *hated*, or the experiencer of an emotion, such as *worried*, also permit readings on which the scalar dimension along which they are measured is one of intensity. For example, a *much despised neighbor* might be despised by only one individual, but with a passion.

What these facts indicate is that the dimensional parameter of the derived scale, like the structure of the scale, is also a function of the meaning of the source verb. Specifically, any of the various aspects of verb meaning that support measurement (temporal extent, number of occurrences, number of participants, intensity, etc.) can be used to fix the dimensional parameter of the derived adjectives scale.

In other words, according to Kennedy & McNally, the intuitive ‘gradability’ of a verb like *appreciate*, which is best defined by what they call intensity, is merely one of the dimensions across we could measure appreciation - it is determined by the context in which we use the verb and does not indicate the presence of a

degree argument. This idea is very reminiscent of what I have called ‘conceptual gradability’ in nouns - and just like before, we may ask if conceptual gradability is really all there is to it.

I propose to consider the possibility that verbs with a degree argument - what we have termed ‘linguistically gradable’ - do exist. In fact, the existence of gradable verbs should be our null hypothesis: verbs are predicates, just like adjectives and nouns, and as the latter two can be either gradable or non-gradable, we would expect verbal predicates to show the same distinction.

Of course, the question is whether there is empirical support for our null hypothesis. If we could show that *appreciate* and its kin can occur in degree constructions that require the presence of a degree argument, this would be evidence for the actual gradability of this class of verbs. This sounds easier than it is. The elements that deal with a gradable predicate’s degree argument are the degree heads we saw in Chapter 1 - *so*, *how*, *too*, *as*, POS and MEAS. The first four cannot have a verbal complement, for independent syntactic reasons; the last two are phonologically null, so demonstrating their presence is not an easy matter. However, there is some evidence that points towards it.

**Entailment of the positive form.** First, for some verbs, the entailment patterns of the verb’s ‘positive form’ and the verbal comparative are identical to the entailments found in parallel adjectival constructions, which points to the presence of POS. To see why this is so, consider the following data:

- (53) a. Vernon is tall.  
      ~ *Vernon’s height exceeds the standard.*
- b. Vernon appreciates jazz.  
      ~ *Vernon’s appreciation of jazz exceeds the standard.*
- (54) a. Vernon is taller than Maxwell, but he is still pretty short.
- b. Maxwell hates jazz with a vengeance. Vernon appreciates it more than Maxwell, but he still rather dislikes it.

The contrast between (53) and (54) shows that the ‘above-standard’ implication of *appreciate* is not part of the verb itself, as it is absent from the comparative construction (if it were present, (54b) would be contradictory). This exactly mirrors the semantics of the adjective, whose positive form is not entailed by the comparative. So, if the verb itself does not involve this comparison with a standard value, what other element could contribute this but POS?

**Modification by size adverbs.** Secondly, it was argued earlier in this chapter (following Morzycki 2009) that degree modification by size adjectives and adverbs is possible because size adjectives are abstract enough to be able to measure the size of degrees. In other words, a predicate cannot be modified by a size adjective unless there is a degree to measure, as we can see by contrasting gradable and non-gradable predicates:

- (55) a. Maxwell is hugely/enormously tall.

- b. \*Maxwell is hugely/enormously dead.
- (56)
- a. Maxwell is a huge/enormous Barbie doll enthusiast.
  - b. %Maxwell is a huge/enormous soccer player.

Crucially, the same contrast emerges when we compare *appreciate* with other, clearly non-gradable verbs:

- (57)
- a. Maxwell hugely/enormously appreciates jazz.
  - b. Vernon hugely/enormously regrets his past decisions.
  - c. \*Maxwell hugely/enormously sprayed the wall with paint.
  - d. \*Vernon hugely/enormously rides his bicycle in the morning.

Note that the ungrammaticality of (57c,d) does not in any way imply that their deverbal adjectives should not be gradable. They are: walls can be *fully sprayed* or *well sprayed* or *more sprayed* with paint than the wall opposite it, and bicycles can be *much ridden*. If apparent gradability in verbs was just a matter of contextually associated dimensions, and hence *appreciate* and *regret* were gradable because of the intensity dimension associated with it, why would the same not hold for *ride*? After all, the corresponding deverbal adjective *ridden* and the possibility of modifying it with *much* (*Maxwell does not ride his bicycle much*) clearly shows that it has a salient number-of-occurrences dimension.

In short, while the availability of size adverbial modification already points to the presence of a degree argument, this conclusion is supported even more by the otherwise inexplicable contrast with other, non-gradable verbs.

**Monotonicity.** Finally, if verbs have a degree argument, we expect them to be monotone just like other gradable predicates. Recall that monotonicity explains why (58a) is not true of a situation in which Vernon is tiny or has a height equal to his birthday, and why (58b) and (58c) lack a degree reading:

- (58)
- a. Vernon is unusually tall.
  - b. %Vernon is usually tall.
  - c. %Vernon is a diminutive jazz lover.

Indeed, the same seems to hold for verbs:

- (59)
- a. Vernon appreciates jazz extraordinarily.
  - b. %Vernon  $\left\{ \begin{array}{l} \text{appreciates jazz} \\ \text{regrets his decision} \end{array} \right\}$  ordinarily.
  - c. %\*Vernon  $\left\{ \begin{array}{l} \text{appreciates jazz} \\ \text{regrets his decision} \end{array} \right\}$  diminutively.

We cannot use (59a) to indicate that Vernon takes his dislike of jazz to unhealthy levels, or (59b) to state that he appreciates jazz about as much as the next guy. Finally, (59c) shows that the Bigness Generalisation - which was

explained in terms of monotonicity - applies to size adverbial modification of verbs as well: *hugely* and *enormously* can easily modify degree in verbs, but *diminutively* cannot.

Concludingly, I would like to suggest that verbal gradability is not just a matter of conceptual, but also of linguistic gradability. The issue of verbal gradability is obviously much more complicated than I have shown, or could have shown, in a thesis whose scope is adjectives and nouns, but I hope this brief discussion has at least opened a new perspective on the matter. Much more needs to be said, I think, about the ways gradable predicates from different lexical classes are semantically interwoven.

## Chapter 5

# Conclusions

In this thesis, I have argued for an analysis of evaluative degree constructions that - rather than analysing them as embedded exclamatives - treats them largely on a parallel with other, more widely studied degree constructions. This analysis explains a wide range of linguistic phenomena: it correctly predicts the absence of *much*-support with EDCs in English, and the behaviour of gender agreement in Dutch. Moreover, it allows EDCs to be headed by different degree morphemes (all except for MEAS, which is ruled out for independent reasons), and - because EDCs follow the standard recipe for a degree construction: a degree predicate, a comparison function and a comparison value - correctly predicts a semantics for each of these combinations that parallels their unmodified counterparts. The analysis also explains, in a straightforward way, the intuitive and empirical differences and similarities between evaluative modifiers and ‘pure’ degree modifiers like *very*, by assigning them to the same syntactic position, but a different semantic type.

Another debate that has returned several times throughout this thesis concerns the analysis of gradable predicates as either degree predicates (type  $\langle d, et \rangle$ ) or measure functions (type  $\langle e, d \rangle$ ). I have argued that evaluative degree modification, as far as I can tell, cannot be explained under a measure function-based approach; in any case, a measure function-based analysis of EDCs will bear very little resemblance to the one presented in this thesis, and presumably lack its empirical benefits. When it comes to size adjectival modification of gradable nouns, the two approaches are equal in explanatory power, although the measure function approach needs a more heavy adjustment of the semantics of MEAS compared to its adjectival counterpart than the degree predicate approach does.

Within the degree predicate approach, the notion of monotonicity is crucial. It explains the absence of certain interpretations of EDCs, and the inability of certain modifiers - upward monotone evaluatives and size adjectives predicating smallness - to modify degree. Because monotonicity is a property of degree predicates, it can also be used as a test to see whether a seemingly gradable predicate does in fact have a degree argument. This way, I have shown certain nouns and verbs to be linguistically gradable, just like adjectives.



A secondary aim of this thesis has been to flesh out the notion of ‘gradable noun’. I have argued that a distinction should be made between *conceptual* and *linguistic* gradability, the latter being defined by the presence of a degree argument. The existence of a phenomenon like metalinguistic comparison, which is sensitive to conceptual gradability, shows that apparent degree modification in nominal constructions does not necessarily point to the presence of a degree argument. By testing for the presence or absence of degree readings with modifiers that are sensitive to the predicate’s monotonicity, however, it is possible to show that there is a class of nouns that is linguistically gradable. I have defined this class in prototype-theoretic terms as those nouns that denote concepts that a) have graded membership, and b) lack a prototype.

Suggestions for further research have included the exploration of DegP structure for gradable mass nouns and verbs, and a closer look into the lexical semantics of evaluatives to explain some differences in their behaviour. It was suggested, based on crosslinguistic data, that the ability of evaluative adjectives to modify degree in nouns is correlated with the possibility of ‘neutralising’ their evaluative content. How this ties in with the semantics for EDCs presented in this thesis (which, in principle, keeps the evaluative content of the modifiers intact, treating them like propositional modifiers) remains a topic for further investigation.

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# Appendices

# Appendix A: Questionnaire

## Background

Every languages contains adjectives that can be modified to indicate the degree to which they hold. For example, we can modify *tall* in *John is tall* to indicate how big John is: *rather tall*, *very tall*, *extremely tall*, *ridiculously tall*, and so on. These gradeable adjectives have been widely studied by syntacticians and semanticists.

But adjectives are not the only words that can be graded. There are also gradeable nouns, although this is a much less studied phenomenon. Examples are nouns like *nerd*, *idiot*, *fan*, *enthusiast*, *simpleton*, and so on. Obviously, one can be an idiot or knitting enthusiast to a greater or lesser degree, and just as with the adjectives this degree can be indicated by adding a modifier. A well-known example of such a modifier is *big* (and similar adjectives): we interpret *John is a big/huge/enormous knitting enthusiast* as 'John is very enthusiastic about knitting', not as 'John is a knitting enthusiast and physically big'.

However, the class of possible noun modifiers appears to be much smaller than the class of possible adjective modifiers. Compare the following sentences:

- (a) John is abnormally nerdy
- (b) John is an abnormal nerd
- (c) John is surprisingly idiotic
- (d) John is a surprising idiot

While *abnormally* in (a) has a degree reading 'John is nerdy to an abnormal degree' meaning 'John is extremely nerdy' *abnormal* in (b) hasn't; (b) can only mean (at least to the overwhelming majority of English speakers I consulted) that John is a nerd and also abnormal (or that John is a nerd but not in a 'normal' way). Similarly, while (c) means 'John is idiotic to a surprising degree', (d) doesn't: it only has the reading 'John is an idiot and also surprising' (whatever that may mean).



One of the purposes of my thesis is to find out which adjectives can function as degree modifiers. Basically, there are two options: (1) something in the semantics of certain adjectives makes them appropriate as degree modifiers, and (2) degree-modifying adjectives simply have this function as part of their lexicalised meaning, and the difference between adjectives that can and can't modify a gradeable noun is basically a historical coincidence.

In the second case, we'd expect the class of possible modifiers to be very different across languages, whereas in the first case we'd expect to see similar properties for words with a similar semantics crosslinguistically. And this, obviously, is where you speaker of an exotic language (i.e. not English) come in!

I know it's a lot, but I'd be extremely happy if you could help me. Even if you can provide only a few adjectives, it's better than nothing. **Thanks a lot!**

Not sure how to answer a certain question? An example of a completed questionnaire (for Dutch) is also included.

## Questionnaire

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**Instructions for question 2 and 3:** *The general format to test for degree readings is as follows:*

- *A is your favourite gradeable noun (a direct translation of one of the English ones mentioned above, or a different one).*
- *B is an adjective.*
- *Using your language's equivalent of John is a B A, try to decide which interpretation fits this sentence best:*
  - (a) *the **degree reading**: 'John is A to a B degree' / 'John is very A-like'*
  - (b) *the **non-degree reading**, approximated by 'John is an A, and he is also B' or something like 'John is an A in a B sort of way'*

- 
- (1) Which language do you speak?
  - (2) Can your gradeable noun be modified by your language's equivalent of *big*, and does this result in a degree reading? Can you give an example?
  - (3) Of the list below, which adjectives result in a degree reading? Which do not? Can you provide:
    - a list of adjectives with English translation, as literal as possible, plus an indication of whether they have a degree reading or not (if you're not sure, or if it depends on the context, just write that down)

- one or two complete examples (the adjective in a John is a B A sentence, with glosses (a very literal word-for-word translation into English))

I am especially interested in your language's equivalents of the following English adverbs:

- unbelievable, incredible
- surprising, unexpected

But also (if you have enough time):

- incomprehensible, unimaginable, impossible, abnormal, insane, bizarre, extraordinary, remarkable, horrible, dreadful, frightening, amazing...

### Example questionnaire

- (1) Dutch.
- (2) Yes; example: 'Kees-Jan is een groot fan van klassiek ballet'  
*Kees-Jan is a big fan of classical ballet*  
Interpretation: K-J really likes classical ballet
- (3) Adjectives that result in a degree reading: *ongelofelijk* ('unbelievable'), *onvoorstelbaar* ('unimaginable'), *ongekend* (lit. 'unknown': 'unheard-of'), *ongehoord* ('unheard-of'), *ontzettend* (lit. 'horrible, frightful', though not often used in this interpretation anymore), *onmogelijk* ('impossible'), *extrem* ('extreme')

Example: 'Kees-Jan is een onvoorstelbaar genie'  
*Kees-Jan is an unimaginable genius*  
Interpretation: K-J is brilliant to an unimaginable degree  
( $\approx$  K-J is very brilliant)

Adjectives that do not result in a degree reading: *verrassend* ('surprising'), *bizar* ('bizarre'), *buitengewoon* ('extraordinary'), *abnormaal* ('abnormal'), *onverwacht* ('unexpected'), *idioot* ('insane'), *opmerkelijk* ('remarkable')

Example: 'Kees-Jan is een buitengewone dikkerd'  
*Kees-Jan is an extraordinary fat.person*  
Interpretation: K-J is an extraordinary guy who is also fat