

The Grammar of Standards

Judge-dependence, Purpose-relativity,
and Comparison Classes in Degree Constructions

Published by

LOT
Trans 10
3512 JK Utrecht
The Netherlands

phone: +31 30 253 5775
e-mail: lot@uu.nl
<http://www.lotschool.nl>

Cover illustration: Scene from a short animation 'Le Retour' by Natalia Chernysheva
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ISBN: 978-94-6093-130-7
NUR: 616

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The Grammar of Standards
Judge-dependence, Purpose-relativity,
and Comparison Classes in Degree Constructions

De Grammatica van Standaarden
Afhankelijkheid van de Beoordelaar,
Doel-relativiteit en Vergelijkingsklassen
in Graadconstructies

(met een samenvatting in het Nederlands)

Proefschrift

ter verkrijging van de graad van doctor
aan de Universiteit Utrecht
op gezag van de rector magnificus, prof. dr. G.J. van der Zwaan,
ingevolge het besluit van het college voor promoties
in het openbaar te verdedigen op
vrijdag 14 februari 2014
om 4.15 uur

door

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geboren 12 april 1983
Vladivostok, Rusland

Promotor: Prof. Dr. H.E. de Swart
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Acknowledgements

First and foremost, I want to thank my supervisors, Henriëtte de Swart and Rick Nouwen, for making this work possible. The roles they played in my dissertation project were different, but both certainly important.

Henriëtte de Swart was there at strategically crucial stages of my project ready to support me both academically and non-academically. Our meetings shaped my understanding of the bigger picture my research is part of, and her honest (but friendly) comments had a great influence on the fundamental aspects of this work. Advices she gave me on non-academic matters sometimes saved me from serious frustration.

Rick Nouwen's impact on this book is very hard to overestimate. Most of the things a reader might find nice or interesting in this dissertation were formulated as a result of discussions with Rick. He is a great supervisor: going into every little detail of content and presentation, but keeping in mind what's important and what isn't, taking the pain to read the same manuscript for the 5th time, patiently leading it towards improvement, but at the same time leaving the student enough space for independent work. If I am now ready to move on in academia as an independent researcher, it's thanks to Rick.

I would also like to thank the members of my dissertation committee (in alphabetic order): Sigrid Beck, Norbert Corver, Jenny Doetjes, Martin Everaert, Louise McNally, Barbara Partee. Some of the comments they provided were too serious and fundamental to implement before this book went to the printer, but I will definitely return to them in my future work.

I first learned about formal semantics during Barbara Partee's introductory course in Moscow around 2003. The fact that many of my classmates joined academia and became semanticists shows how inspiring these classes were and how outstanding Barbara is as a lecturer and mentor. I thank Barbara for showing us the beauty and fun of semantics. I do think that fun should be the driving force of every work, and I am happy that I found a field that gives me that.

My supervisors in Moscow, Konstantin Kazenin and Yakov Testelet, are responsible for my syntactic education and my interest in syntactic structure. This interest has shaped this dissertation to a significant extent. The same people, together with

Alexander Evgenievich Kibrik, Sergei Tatevosov and Katya Lyutikova, introduced me to the world of cross-linguistic studies and linguistic field work, which is now part of my professional identity.

Let me thank other colleagues who discussed my work with me and/or collaborated with me and/or shaped me as a linguist without maybe even knowing it (alphabetic order again): Chris Barker, Ryan Bochnak, Micha Breakstone, Heather Burnett, Lucas Champollion, Anna Chernilovskaya, Arik Cohen, Liz Coppock, Jakub Dotlačil, Itamar Francez, Berit Gehrke, Anastasia Giannakidou, Natasha Ivlieva, Lena Karvovskaya, Chris Kennedy, Angelika Kratzer, Yuri Lander, Peter Lasersohn, Ora Matushansky, Eric McCreedy, Jason Merchant, Friederike Moltmann, Rumi Pancheva, Guillaume Thomas, Galit Sassoon, Roger Schwarzschild, Stephanie Solt, Yasutada Sudo, Igor Yanovich, and more.

I want to thank Maaik Schoorlemmer for being the person at UiL-OTS that I could always turn to for advice regarding my very complicated bureaucratic, visa-related, family-related, money-related and residence-related issues.

There are people in Utrecht, Moscow, or other places around the globe who were part of my life during these last several years. Some of these people are good friends of mine, some of them probably don't really like me much, some of them I haven't seen for ages, with some of them I chat over coffee almost every morning. In any case, they have been the social context of my professional and whatever else kind of life I have. And that's nice. In random order (note the intersections with the linguistic list above): Anna Graschenkova, Yasutada Sudo, Anna Chernova, Agrippina Pakharukova, Anna Chernilovskaya, Lena Karvovskaya, Denis Dolzhikov, Tanya Tikhnenko, Natasha Ivlieva, Sasha Podobryaev, Sergei Minor, Sasha Grubiyanova, Guillaume Thomas, Stas Zadorozhny, Marina Melnik, Sergei Tatevosov, Petya Volyak, Nadya Antonova, Yakov Testelets, Olesya Gerasimenko, Ora Matushansky, Jakub Dotlačil, Assaf Toledo, Hanna de Vries, Loes Koring, Daria Bahtina-Jantsikene, Heidi Klockmann, Liv Persson, Sophia Manika, Alexia Guerra Rivera, Dominique Blok, Natasha Korotkova, Igor Yanovich, and more.

Special thanks go to my paranympths Maartje Schulpen and Stavroula Alexandropoulou, who keep making my life in Utrecht much more fun and much less stressful than it would otherwise be.

There are people who helped me a lot during my dissertation in many ways, although I have never ever seen them in real life. This is how the cover illustration for this book was found – it is a scene from an animation somebody sent me a link to. Then a number of other people helped me contact the animation artist who created it (Natalia Chernysheva), and the permission to use the image was granted. There were many other stories like that during the last couple of years. Thank you, people on the internet! 21st century is amazing.

Finally, I want to thank my family. My parents Vera Bylinina and Grigory Fishman did so much for me that its impossible to describe this on paper. The same is true for my aunt Galina Bylinina. Among other things, they supported me when I decided to join academia instead of getting a 9 to 5 well-paid job closer to them in Russia. I value this support a lot. Which leads me to the last thank-you here – my daughter Vera, I guess, has suffered most from this dissertation project. Sorry, Verka, I'll pay more attention now when this is done! ❀

CHAPTER 1

Introduction

In the past several decades, *John is tall* has become one of the most extensively discussed sentences in semantics and philosophy of language. At first glance, it's hard to see what is so special or puzzling about it. But looking a bit deeper, the puzzle is that despite its apparent simplicity, the exact meaning of this sentence is very hard to pin down. What height does John have to have to count as tall? It seems to be very hard or impossible to name the exact number of meters or inches. This number might depend on whether John is a boy or a grown-up, but also on why we are talking about his height – maybe he is trying to sit on a very small chair, or he wants to drive a mini cooper, and we are discussing how John's height fits this purpose. Also, there is the speaker's personal view on where the borderline between short and tall people lies, based on his or her experience, the average heights of people in the region he or she grew up in, his or her opinion on what is average, normal, or outstanding as a height of a person of a particular category.

Schematically, this sentence involves comparing John – or, more accurately, John's height – to some other degree that can be called a standard of comparison, here represented as d_{ST} :

$$(1) \quad \text{John's height} > d_{ST}$$

The question of what height John has to have to count as tall can be reformulated in the following way: what is the standard of comparison d_{ST} that *tall* makes reference to? This standard appears to be an indecomposable combination of numerous factors about the speaker's internal state, the facts of the world, and the linguistic context. The most commonly discussed ingredients of the standard value include: 1) subjectivity (or judge-dependence) of the standard (Richard, 2004; Paenen, 2011; Bouchard, 2012;

Kennedy, 2012, a.o.); 2) its purpose- or interest-relativity (Fara, 2000; Fleisher, 2008, 2011, a.o.); 3) its relativity to a reference set, or comparison class (Kennedy, 2007; Bale, 2008, 2011; Solt, 2011, a.m.o.).

For example, comparison classes clearly influence the value of the standard: if John's height is evaluated with respect to men in general – as the sentence *John is tall* by default suggests – or with respect to the members of John's age-group, lower height might be sufficient to count as tall – compared to a context in which John's height is evaluated over the reference set of basketball players in the team John is a member of. In this way the cut-off point between *tall* and *not tall*, and thus the standard d_{ST} , is affected by the comparison class salient in the context. This intuition is extensively supported experimentally (Bonini et al., 1999; Egré, 2009; Alxatib and Pelletier, 2011, a.m.o.).

At the same time, even in the experimental studies that fix a comparison class presented to the subject, the cut-off point and, consequently, the standard varies significantly from subject to subject and from run to run. This strongly suggests that comparison class indeterminacy is not the only ingredient of the indeterminacy of the standard in a positive construction – a bare occurrence of a gradable adjective, as in *John is tall* (Raffman, 1994, 1996; Soames, 1999; Stanley, 2003; Shapiro, 2006, a.m.o.).

Fara (2000) argues for 'interest-relativity' of the standards in the positive construction. As an example, consider a casting for a role in a movie. The character, according to the script, is very short. John might be rejected at the casting on the basis of him being tall – but what counts as tall in this case would be different from tall in a less special situation, relative to men in general. The standard for *tall* in the casting scenario might be lower, as it is affected by the 'purpose' or the 'interest' of the speaker.

Finally, the standard for *tall* is a matter of opinion – i.e., even when all the 'external' parameters such as a comparison class and a context are fixed, the cut-off point varies from speaker to speaker, as illustrated by the fact that *tall* goes perfectly naturally under explicit markers of perspective-relativity, unlike perfectly objective items like mathematical terms (Richard, 2004; Bouchard, 2012, a.m.o.):

- (2) a. In my opinion, John is tall.
 b. ??In my opinion, 7 is a prime number.

The borderline between these factors is quite often blurred and hard to locate, and doing this is one of the task of the current dissertation. More importantly though, it is not clear how to analyse these dependencies, which often go under quite uninformative labels of 'context-dependency' or 'vagueness' of the standard of comparison invoked by certain predicates. A huge body of work has been produced in semantics, philosophy and psycholinguistics to identify the factors affecting the standard. However, what these intuitions exactly amount to in terms of compositional semantics is not clear in most cases. One potential analysis would be a totally pragmatic one, according to which the information about the factors contributing to the value of the standard gets inferred from the context and is not or cannot be introduced in the structure of a sentence in a compositional way. I will argue against such a view, and discuss reasons

to believe that different factors need different treatment, and in most cases, an analysis along more structural lines is the correct one.

Importantly, I believe that deciding between these two options is too hard or impossible only looking at sentences containing a subject and a predicate, like *John is tall*, as much of the philosophical literature has done so far. I suggest to take a more linguistic perspective. By this I mean investigating the mechanisms that languages (and natural language in general) use to build in the information on judge-dependence, reference sets etc. rather than solely the overall interpretational effects these factors have on the statement. In particular, I address the class of ‘standard-setting’ or ‘standard-affecting’ expressions – ‘judge’ PPs, comparison class *for*-phrases, all sorts of ‘purpose’-clauses, that can be part of the construction with the positive gradable adjective, as shown below:

- | | | | |
|-----|----|---|------------------|
| (3) | a. | The ride was <i>fun</i> for John . | JUDGE |
| | b. | ‘War and Peace’ is a <i>long</i> book to read in one day . | PURPOSE |
| | c. | Vera is <i>smart</i> for a 5-year-old . | COMPARISON CLASS |

I will investigate the structure of the sentences with these ‘standard-affecting’ expressions to distill their impact on the structure and semantics of the construction. I will use the result to generalise to the ‘bare’ case – when there is no overt ‘standard-affecting’ expression. I think this direction – moving from the overt to the bare case – leads to a better linguistic understanding of the phenomena addressed in this dissertation, and leads to a number of observations that wouldn’t be available otherwise. Thus, I believe, the main impact of this study is to put forward a significant amount of new data that have never been discussed before – both from English and cross-linguistically, and putting forward a structural and semantic analysis of the data, contributing to a more abstract discussion on the nature of the standard in the positive construction.

To give a preview of the results, I show the class of ‘standard-affecting’ expressions is heterogeneous in terms of mechanisms of their contribution, in some cases very indirect – for example, judge PPs affect the standard by quite indirect and not directly compositional ‘coordination’ with the judge index of evaluation. At the same time, the contribution of other items in this list is mistakenly severed from the domain of compositional semantics – like infinitival clauses in constructions like *This is a long book for John to read* that have been given a pragmatic analysis, which I believe to be wrong. And finally, certain types of standard-modification haven’t been noticed before at all and don’t seem to fit the standard picture – like clausal ‘comparison class’ expressions, a clear example of which is found in the Japanese comparison class construction. I will discuss an option of extending this analysis to comparison class constructions in other languages.

There are several ways in which I limit the empirical scope of my study. First, I will only discuss the adjectival domain. Vague nominal predicates such as *heap* and verbs such as *cool* are often considered similar to the positive form of gradable adjectives in many respects, but I will not look at them in this dissertation. Second, I will only look at the constructions that have no overt degree morphology on the gradable adjective and thus seem – at least on the surface – to be cases of a positive

construction. This excludes from my consideration primarily comparative, superlative and equative constructions that are clearly marked for degree morphology. Comparative, superlative and equative morphemes are a visible locus of degree semantics of these constructions. The non-marked cases that I am interested in are particularly puzzling in terms of compositionality precisely for the reason of the lack of such visible locus – especially, given a class of phrases and clauses that can be found in these constructions and have a very poorly understood effect on the degree semantics of the overall expression. Moreover, the lack of such ‘locus’ generally correlates with vagueness / context-dependence of the standard in a degree construction. For example, a comparative construction normally has an overt standard, and it can be omitted only in case the exact standard degree is salient in the context Alrenga et al. 2012, a.m.o. – ignoring ‘pluractional comparatives’ (Beck, 2012) and comparatives in definite descriptions (Gawron, 1995; Bylinina, 2011). In contrast, positive constructions don’t have uncontroversial candidate for a ‘standard phrase’ at all. These properties make them particularly attractive and challenging for a study in terms of compositional semantics.

In the rest of the introduction, I will state the basic conventions I will use in what follows, give a basic background on degrees and gradability, and sum up the chapters of the dissertation.

1.1 The basics

I will use the semantic framework of formal truth-conditional model-theoretic compositional semantics in its most well-known version, as described, for instance, in (Heim and Kratzer, 1998). I believe that this particular choice of a compositional framework is not crucial for most of the facts I describe and the solutions that I propose, but I use it as a mainstream formal semantic framework and as one I am most familiar with.

I will presuppose some familiarity with this system throughout the dissertation, and won’t give an extensive introduction of all the conventions. However, I will briefly state the most important ones. As a metalanguage for a semantic description I will use a combination of plain English and predicate logic. I assume that the input for the semantic component of grammar is a syntactic representation, which is generated by syntax independently of semantics. This syntactic representation that semantics operates over is an unambiguous hierarchical description of a sentence called Logical Form (LF). This description is taken as input by semantics, which maps it to model-theoretic objects in a compositional way – as a function from the semantics of its atomic parts (stored in the lexicon) and the way these atomic expressions are combined. The function that maps LF to its model-theoretic interpretation is called the interpretation function, and is represented here as $\llbracket \cdot \rrbracket$.

As the semantics I will be using involves type-driven interpretation, let me quickly list the types I will be assuming. The set of types \mathcal{T} is the smallest set such that: 1) **atomic** types e (individuals), t (truth-values), d (degrees), s (worlds) $\in \mathcal{T}$; 2) **functional** types such that if $\sigma, \tau \in \mathcal{T}$, then $\langle \sigma, \tau \rangle \in \mathcal{T}$.

Based on these types, the following domains can be defined:

- (4) a. $D_e :=$ set of individuals;
 $D_t := \{\text{False}, \text{True}\}$ (sometimes written as $\{0, 1\}$);
 $D_s :=$ set of worlds;
 $D_d :=$ set of degrees;
 b. $D_{\langle\sigma, \tau\rangle} := \{f: f \text{ is a function from } D_\sigma \text{ to } D_\tau\}$, for $\langle\sigma, \tau\rangle \in \mathcal{T}$.

The question of independent existence of each of these domains won't interest me throughout the discussion. For instance, the intersection of the domain of individuals and the domain of worlds is, naturally, empty. There are debates as whether the same is true for the domain of degrees and the domain of individuals – the former might be thought of as constructed from the latter (Cresswell, 1977; Klein, 1980, a.o.). It won't be crucial for anything I say, but I return to this question briefly when I introduce gradability shortly.

The rules of type-driven semantic interpretation that I assume are the following. First, the interpretation of lexical items is taken from the lexicon:

- 0) LEXICAL ITEM
 For any terminal node A, $\llbracket A \rrbracket$ is in the lexicon.

Some examples of lexical items and their denotations as found in the lexicon are below:

- (5) a. $\llbracket \text{John} \rrbracket = \text{John}$
 b. $\llbracket \text{boy} \rrbracket = \lambda x_e. x \text{ is a boy}$
 c. $\llbracket \text{proud} \rrbracket = \lambda x_e \lambda y_e. y \text{ is proud of } x$

The type of *John* is an individual e ; *boy* is a function from individuals to truth-values $\langle e, t \rangle$ – a one-place relation; *proud* is a 2-place relation, type $\langle e, e, t \rangle$.

Second, I treat pronouns and traces of movement as variables that do not have any information on their referent in the lexicon. I assume they are interpreted via assignment function g – a function that maps numerical indices pronouns and traces come with to individuals in the D_e domain. Thus, the interpretation function now needs to be relative to an assignment function: $\llbracket \]^g$:

- 0.5) PRONOUN AND TRACE RULE
 If α_i is a pronoun or a trace, $\llbracket \alpha \rrbracket^g = g(i)$

I will use more parameters that relativise the interpretation function when it becomes relevant in Chapter 2 – such as world, time and, tentatively, the judge, as well as some more parameters. I will discuss these extra parameters as I proceed. Most of the time, where not relevant, I will omit the assignment function from my notation, but it is assumed to be there in every semantic representation, when fully spelled-out. Assignment function plays a role in the structures involving movement and thus trace interpretation, which will be one of the important issues in Chapter 3. I will introduce how the dislocated constituent combines with the structure containing the trace shortly.

Third, moving from terminal nodes to more complex expressions, the rules that interpret an LF corresponding to such expressions are needed. One of such rules would

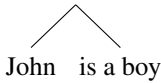
be functional application:

1) FUNCTIONAL APPLICATION

If β and γ are the daughters of α and $\llbracket \beta \rrbracket^g \in D_\sigma$ and $\llbracket \gamma \rrbracket^g \in D_{\langle \sigma, \tau \rangle}$ for $\sigma, \tau \in \mathcal{T}$, then $\llbracket \alpha \rrbracket^g = \llbracket \gamma \rrbracket^g(\llbracket \beta \rrbracket^g)$.

As an example, consider the sentence *John is a boy*. Let's ignore the internal structure of a predicate *is a boy* and consider it roughly the same as *boy* syntactically and semantically. The simple LF that would be the input of the semantic component is in (6):

(6)



The meanings of *John* and *is a boy* (= meaning of *boy*), as in (5-a) and (5-b) combine using the rule of Functional Application: α corresponds to the root node of the sentence, β corresponds to *John*, and γ corresponds to *is a boy*:

(7) $\llbracket \text{John is a boy} \rrbracket^g = \text{True}$ iff John is a boy.

To capture the interpretation of traces and the uses of pronouns that are bound by some constituent in their domain, one further rule of non-terminal-node interpretation is needed, namely, a Predicate Abstraction rule:

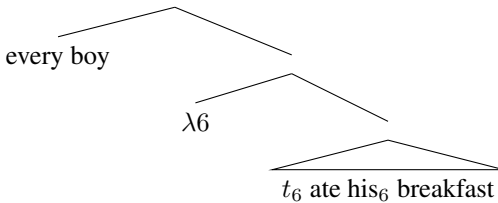
2) PREDICATE ABSTRACTION

If α has a binder index λi and β as daughter constituents, then $\llbracket \alpha \rrbracket^g = \lambda x_e. \llbracket \beta \rrbracket^{g[i \mapsto x]}$.

$g[i \mapsto x]$ is a minimally modified assignment function such that the only difference from g is that $g[i \mapsto x](i) = x$.

Let's consider an example *Every boy ate his breakfast*. Under a bound reading of the pronoun, an LF corresponding to this sentence would look like (8):

(8)



The movement of *every boy* leaves a trace co-indexed with the bound pronoun *his* and creates a binder index $\lambda 6$ with the same numerical index. According to the Predicate Abstraction rule, the constituent $\lambda 6 t_6 \text{ ate } his_6 \text{ breakfast}$ would have the following interpretation:

$$(9) \quad \llbracket \lambda 6 t_6 \text{ ate his}_6 \text{ breakfast} \rrbracket^{g[6 \rightarrow x]} = \lambda x_{e..x} \text{ ate } x\text{'s breakfast}$$

Assuming *every boy* is a generalised quantifier with the semantics in (10-a), the truth-conditions of the sentence in (8) would be the following:

- (10) a. $\llbracket \text{every boy} \rrbracket^g = \lambda P_{\langle e,t \rangle}. \text{ for every } x \text{ who is a boy, } P(x) = 1$
 b. $\llbracket \text{Every boy ate his breakfast} \rrbracket^g = 1$ iff for every x who is a boy, x ate x 's breakfast.

I won't always spell out the structure corresponding to movement in as much detail as above, but my representations throughout the text can always be unambiguously unpacked into a representation as in (8) in combination with the Predicate Abstraction rule. Also, I will spell out the parameters the interpretation function is relative to only when it is relevant for the discussion and only those that are relevant. Parameters of the interpretation function will be crucial in Chapter 2, but do not play a role in the rest of the dissertation.

I will now introduce some background on gradability and degrees that will be used in the forthcoming chapters.

1.2 The semantics of gradability

In this dissertation, I will be dealing with *gradable* predicates – intuitively, those predicates that can be linguistically specified to hold to a certain extent or degree. Gradable predicates (*tall*, etc.), unlike non-gradable ones (*even*, etc.), can appear in a number of degree constructions, such as comparatives, *too / enough*-constructions, with degree modifiers and in degree questions:

- (11) a. John is taller than Bill. COMPARATIVE
 b. *2 is more even than 4
- (12) a. John is too tall to become a miner. TOO, ENOUGH, SO
 b. *2 is too even to be a prime.
- (13) a. John is very / extremely / surprisingly / quite tall. DEGREE MODIFIERS
 b. *2 is very / extremely / surprisingly / quite even.
- (14) a. I dont know how tall John is. DEGREE QUESTIONS
 b. *I dont know how even 2 is.

The core assumptions about gradable adjective meaning I will be assuming are shared in some form by many semantic analyses of gradability (Bartsch and Vennemann, 1973; Seuren, 1973; von Stechow, 1984; Bierwisch, 1989; Cresswell, 1977; Heim, 1985, 2001; Kennedy, 1997, 2007; Kennedy and McNally, 2005; Klein, 1991, a.o.):

- (15) a. Gradable adjectives relate their arguments to abstract representations of measurement, or DEGREES.
 b. A set of degrees totally ordered with respect to some DIMENSION (height, cost, etc.) constitutes a SCALE.

As (15) suggests, the semantic system I will couch my discussion in introduces a distinct semantic type for degrees (type d in the ontology stated in the previous section) to deal with gradability. There are systems that do not introduce a semantic type d into the ontology (McConnell-Ginet, 1973; Fine, 1975; Kamp, 1975; Klein, 1980, a.o.). I believe that independent existence of degrees in ontology is more of a philosophical rather than linguistic issue – objects equivalent to degrees in linguistically relevant sense can be constructed from sets of individuals, but it results in significantly complicating the semantic system. Whether it is the right move is far beyond the topic of the current study.

There are several implementations of what (15) amounts to in terms of lexical semantics of gradable adjectives. One tradition analyses gradable adjectives as measure functions of type $\langle e, d \rangle$ (Bartsch and Vennemann, 1973; Kennedy, 1997, 2007, a.m.o.). For example, the adjective *tall* would be a function from a subset of D_e that have some height to heights:

$$(16) \quad \llbracket \text{tall} \rrbracket = \lambda x. \mu_{\text{tall}}(x),$$

where μ_{tall} is a measure function on the scale of height.

The other analysis is one in which gradable adjectives denote relations between degrees and individuals, type $\langle d, \langle e, t \rangle \rangle$ (see Kennedy 1997; Heim 2001; Bhatt and Pancheva 2004; Neeleman et al. 2004 a.o. for a discussion of the differences between two analyses):

$$(17) \quad \llbracket \text{tall} \rrbracket = \lambda d \lambda x. \mu_{\text{tall}}(x) \geq d,$$

where μ_{tall} is a measure function on the scale of height and \geq is a non-strict exceed relation in the domain of degrees.

Some notational variants of (17) sometimes found in the literature are the following:

$$(18) \quad \begin{array}{l} \text{a. } \llbracket \text{tall} \rrbracket = \lambda d \lambda x. x\text{'s height} \geq d \\ \text{b. } \llbracket \text{tall} \rrbracket = \lambda d \lambda x. \text{tall}(x, d) \\ \text{c. } \llbracket \text{tall} \rrbracket = \lambda d \lambda x. x \text{ is } d\text{-tall} \end{array}$$

The degree relation in (17) is monotone, so that if it holds for a certain degree d , it also holds for any lower degree d' :

$$(19) \quad \forall x \forall d \forall d' : \text{tall}(x; d) \wedge d \geq d' \rightarrow \text{tall}(x, d')$$

The degree relation analysis, as one can see in (17), also assumes that gradable adjectives encode measure function as part of their lexical meaning, thus the difference between the two analysis is not drastic in terms of the resulting semantics (but suggests a slightly different syntactic structure). It is not entirely clear to what extent these analyses are equivalent for the questions I am discussing here. I will not solve the problem of (non-)equivalency of these two analyses, but will use them in the following way: as a default, I will use a degree relational analysis as in (17), but I will switch to a measure function analysis when reporting other work that is easier to formulate within the measure-function approach to gradable adjectives. I will explicitly

mark these switches, and always use a degree relational semantics in my analysis.

For both kinds of analysis, an additional step is needed for a compositional interpretation of a sentence like *John is tall* – a measure function of type $\langle e, d \rangle$ can apply to individual (*John*), but returns a degree rather than a truth value; a degree relation of type $\langle d, \langle e, t \rangle \rangle$ cannot directly combine with an individual at all. The common assumption is that both measure functions and degree relations are converted to properties of individuals with the help of degree morphology or an equivalent type shift. In the case of the positive construction, like in *John is tall*, a silent degree morpheme POS is postulated, with the following semantics ((20-a) for a measure function analysis of gradable adjectives and (20-b) for degree relations):

- (20) a. $\llbracket \text{POS} \rrbracket_{\langle \langle e, d \rangle, \langle e, t \rangle \rangle} = \lambda g_{\langle e, d \rangle} \lambda x_e . g(x) > d_{ST}$
 b. $\llbracket \text{POS} \rrbracket_{\langle \langle d, et \rangle, \langle e, t \rangle \rangle} = \lambda G_{\langle d, et \rangle} \lambda x_e . \mathbf{max}(\lambda d . G(d)(x)) > d_{ST}$
 where d_{ST} stands for a standard degree, whatever it is.

After POS combines with the gradable adjective, the result is of type $\langle e, t \rangle$ and can directly predicate over an individual, with equivalent results for a measure function and degree relation as the semantics of gradable adjectives:

- (21) a. $\llbracket \text{POS}_{\langle \langle e, d \rangle, \langle e, t \rangle \rangle} \text{ tall} \rrbracket = \lambda x_e . \mu_{\text{tall}}(x) > d_{ST}$
 b. $\llbracket \text{POS}_{\langle \langle d, et \rangle, \langle e, t \rangle \rangle} \text{ tall} \rrbracket = \lambda x_e . \mathbf{max}(\lambda d . \text{tall}(d)(x)) > d_{ST}$

In general, it is easy to go back and forth between measure functions and degree relations based on a certain scale with an equivalent result (see Kennedy 1997 for a silent morpheme ABS switching between the two):

- (22) $\lambda x_e . \mu_{\text{scale}}(x) \leftrightarrow \lambda x_e . \mathbf{max}(\lambda d . G_{\text{scale}}(d)(x))$

Note that in degree-less analyses of gradable adjectives mentioned above gradable adjectives usually have type $\langle e, t \rangle$ and can directly predicate over individuals without mediation of degree morphology such as POS. Despite the intuitive appeal of this approach in that it does not postulate invisible elements such as the positive morpheme, it won't be compatible with the data I discuss in Chapter 3 concerning detectable quantificational behaviour of POS. I will discuss this in the main text of the dissertation.

We can now relate this summary to the discussion above on the status of judge-dependency, comparison classes and purpose-relativity of the positive form of gradable adjectives. As the entries for gradable adjectives and the entries for POS in (20) suggest, the standard itself – as well as the ‘judge’, or the comparison class, or the purpose – does not enter the semantics of the positive construction compositionally at any point. The standard is not an argument of POS, but is somehow picked up from the context, allegedly subsuming the information on judge-dependence, comparison classes, and purposes or interests.

The goal of my dissertation can be seen as probing and challenging this under-articulated view on the basis of the analysis of expressions that encode these standard-affecting factors. This would require looking inside a standard-affecting expression to establish its internal syntax and semantics, as well as testing its external distribution.

It is worth sketching more formally the potential ways the mentioned factors could be incorporated into the semantics of the positive construction. The tools we have in hand now given the formal system outlined above allow for several options. First, certain information can come into play non-compositionally, in a sense that there is no silent or overt element in the LF that would introduce it at the point of the derivation where the standard of comparison is calculated and that would enter the semantic composition in one of the ways defined above – the system I am using suggests that that this ‘non-compositional way’ can be via parameters of the interpretation function. In this case, an overt expression that encodes this information has to somehow modify these parameters directly – as their only contribution or as a ‘side-effect’ distinct from its primary function, which might have nothing to do with degrees and standards at all. Second, the information can be introduced compositionally – there may be a silent or an overt constituent introducing the standard-affecting information directly in the domain where the standard is calculated either as an argument of a positive morpheme or of an adjective, or as a modifier at some level close to the adjective or the degree head.

In fact, in the course of the history of the question concerning the ingredients of the positive standard, all of the options described here have been suggested as an analysis of standard-affecting expressions I will be talking about: comparison classes have been analysed as adjuncts on the level of the adjective (Kennedy, 2007; Bale, 2008, 2011) and as arguments of the positive morpheme (Solt, 2011); *judge* has been treated as an argument of the adjective (Stephenson, 2007a,b; Stojanovic, 2007), or as a parameter of the interpretation function, with the *judge*-phrase directly modifying the interpretation function parameter (Lasersohn, 2005, 2009); ‘purpose’ has been argued to have no direct compositional relation to the adjectival extended projection (Fara, 2000; Fleisher, 2008, 2011).

I will critically review these theories with the help of systematic examination of new cross-linguistic data (coming from English, Russian, Japanese, Greek, Czech, Hungarian, French and Dutch) and arrive at a more linguistically motivated view on the ways the alleged ‘context-dependency’ or ‘vagueness’ of the positive form of gradable adjective is built up from its ingredients. In some cases, the new data will help decide between existing theories (I will argue that a ‘non-compositional’ view on judge-dependence covers the data better), in other cases it will force us to abandon one existing theory and build up a new one (in the case of ‘purpose-relativity’, I will argue for a compositional, structural impact of infinitival clauses, contra Fleisher 2008, 2011), while in some more cases the data I present won’t decide between the two existing theories but would lead to a revision of the internal structure of the standard-affecting expression.

Let me now briefly outline the content of the chapters the dissertation contains, and move to the main text.

1.3 Plan of the dissertation

The dissertation is organised in 3 chapters (excluding the introduction), which discuss the standard-affecting factors in turn – starting with judge-dependence (or subjectivity) of the positive gradable adjectives, proceeding to purpose-relativity, and ending with comparison classes.

1.3.1 Chapter 2: Judge-dependence in degree constructions

This chapter discusses judge-dependence as a factor that affects the interpretation of certain degree construction – mainly, the positive construction, but also some constructions beyond the positive, in particular, ‘modal degree constructions’, for example, *too / enough* constructions. The linguistic realization of the ‘judge’ has been claimed to be found in the ‘judge’-PP constructions, like *The ride was fun for John*.

I argue that the contribution of ‘judge’-PPs such as in *The ride was fun for John* is more indirect than usually assumed in the literature. The existing theories treat them either as judge arguments of adjectival predicates or as direct shifters of the judge index of evaluation. Both classes of theories presuppose that the judge PPs are licensed in all the constructions that are judge-dependent. Carefully looking at the class of predicates and constructions that can host ‘judge’-PPs, I conclude that these PPs (or, in other languages, DPs) are available only with a subclass of subjective predicates – more specifically, those that involve a reference to an experience event as part of their semantics (and as a source of their subjectivity).

Thus I argue that these PPs are experiencer phrases – in that they realise an experiencer thematic role and pattern with a well-known class of dative experiencers. Thus their availability is to an extent independent from judge-dependence *per se*. I argue that judge-dependence (as seen from degree constructions) is best modelled as dependency on the ‘judge’ index of evaluation, which is one of the parameters of the interpretation function. The visible dependency between the experiencer and the value of the judge index of evaluation is captured by the ‘judge=experiencer’ constraint that I propose for a particular class of experiencer predicates. I argue that this constraint is rooted in more general facts about human cognition and the problematic status of an external assertion about someone else’s non-externalizable experience.

Therefore, the semantics of constructions that involve judge PPs is built up from the experiencer semantics of a predicate that licences the PP and a principle regulating which values the judge index of evaluation can take when the statement is about a non-externalizable experience event. This analysis is, I believe, more illuminating than the existing analyses, either not saying anything about the possible values of the judge index or postulating ‘several types of subjectivity’, which is not necessary and, as I argue, not desirable.

I conclude by drawing tentative parallels between judge shifting and other cases of shifting (perspective shifting and indexical shifting), which would constitute a promising line of further research.

Appendix 1 discusses in detail subjectivity of the positive dimensional adjectives like *tall*; Appendix 2 is a discussion of subjectivity of evaluative adjectives like *smart*.

1.3.2 Chapter 3: Purpose-relativity in degree constructions

The ‘purpose-relativity’ in the interpretation of the positive form of gradable adjectives has been treated as a largely pragmatic phenomenon. For constructions overtly specifying a ‘purpose’ in the infinitival clause, as in *This is a long book to assign*, the existing analysis (Fleisher, 2008, 2011) proposes no direct semantic or syntactic relation between the DegP/AdjP and the infinitival clause. The semantics of ‘inappropriateness’ – or non-compatibility with a purpose by exceeding the maximal compatible degree – has been proposed to be derived by pragmatic mechanisms of ‘prominence’ of a certain (modalized) set of individuals that then helps figure out the standard of comparison for POS. Structurally, under this analysis, the infinitival clause has nothing to do with POS or with the adjective and is basically an ordinary infinitival relative clause. I argue that this analysis has to be wrong. A number of observations – involving inference patterns, facts from NPI licensing, island sensitivity, reconstruction, low degree modification, cross linguistic availability of the constructions in question, etc. – point in the direction of a very different analysis of this attributive-with-infinitive construction.

I argue that the infinitival clause in this particular case denotes a degree interval (type *dt*) and directly serves as an argument of the positive morpheme, providing the standard degree. This makes these expressions much closer to other standard-denoting expressions, quite like *than*-phrases in comparative constructions. I also argue that in this construction the POS morpheme has to scope out of the AdjP it originates in, and thus it behaves like a degree quantifier.

I extend the analysis to a so-called ‘functional standard’ construction, as in *This book is a bit long to read in one day*, where the gradable adjective is not in the attributive position of the DP. I show that directly applying the analysis for the attributive case won’t work, and propose a coercion analysis (for many speakers triggered by the low degree modifier *a bit*).

All in all, I argue that the existing ‘pragmatic’ analysis of purpose-relativity in a positive construction is too pragmatic. A closer look at the mechanisms underlying the effect of the infinitival clause introducing the ‘purpose’ is much more local, structural, and compositional than it could seem on the surface.

Appendix 1 gives more detail on the existing analysis of the attributive-with-infinitive construction (Fleisher 2008, 2011) for the reference.

1.3.3 Chapter 4: Remarks on comparison classes

This chapter investigates the notion of comparison classes, or reference sets, and their role in the interpretation of the positive form of dimensional adjectives. I consider both implicit comparison classes and – in more detail – overt comparison class phrases, such as English *John is tall for a basketball player*.

Basically, all that is known about comparison class phrases so far is that they somehow affect the standard of comparison and that there is a presupposition of inclusion between the subject of the gradable predicate and the comparison class (in the example above, that John is a basketball player). There are two theories analysing

the way these interpretational effects are achieved: one theory analyses comparison classes as arguments of the positive morpheme POS, while the other one treats comparison classes as adjectival modifiers. The common wisdom about the semantics of the comparison class phrases presupposed in both theories is that they denote a set of individuals. The data I present challenge the view that comparison class *for*-phrases are just regular PPs – argumental or adjunct. They look more like nominal predicates, which is something none of the existing theories can capture.

I make use of various diagnostics to probe the structure of these *for*-phrases, including distributivity patterns and the particular restrictions on the types of DPs that appear in the predicate vs. argument position, etc. I provide support for a clausal analysis that preserves the known parallels between this use of *for* and other uses of *for* as a complementizer (its modal flavour, operator movement in *for*-clauses elsewhere, the resulting non-argumental type). Under this analysis, comparison class *for*-phrases involve clausal structure with operator movement from the subject position of a small clause; *for* acts as a modal complementiser, quite like in other known occurrences of *for*.

As an example of an explicitly clausal comparison class phrase which English doesn't give direct evidence for, I consider Japanese comparison class construction. However, I am not making the final decision to have a Japanese-like analysis for English, leaving both possibilities open.

Judge-dependence in degree constructions

2.1 Introduction

This chapter discusses judge-dependence of gradable adjectives and degree constructions. Take the positive construction as an example: whether sentences like *John is tall*, *This book is interesting*, or *Mary is smart* are true or false depends not only on a state of affairs but also on whose opinion is being expressed. In this sense, such sentences are *subjective*. Indeed, these examples pass one of the classic tests for subjectivity – the ability to be embedded under ‘subjective attitude verbs’ like *find* or *consider* (unlike, say, a predicate *4 years old*):

- (1) a. I find / consider this book interesting.
- b. I find / consider John tall.
- c. I find / consider Mary smart.
- d. *I find / consider Vera four years old.

If the breakdown of the domain of individuals into the positive and the negative extension of *tall*, *interesting* and *smart* is subjective, this must mean that the cut-off point between *tall* and *not tall* (*interesting / not interesting* etc.) – i.e., the **standard** – is subjective. In other words, subjectivity is an essential part of figuring out the semantics of standards in at least some of the degree constructions, illustrated here for the positive construction. An obvious question to ask is what is the right way of analyzing this dependency between an opinion-holder, or judge, and the breakdown into P and not P.

A related question concerns the semantics of overt expressions introducing the opinion-holder – so-called ‘judge-PPs’, illustrated in (2):

- (2) a. This book is interesting **for / to John**.
 b. The ride was fun **for John**.
 c. The news was pleasing **to John**.
 d. This cake is tasty (?)**for / to John**.

I believe that the compositional impact of the judge-PPs in a construction when a judge-PP is present and the semantics of the construction with a subjective predicate without an overt judge are interrelated issues. A better understanding of judge PPs can help with understanding the ‘bare’ case, where no overt judge PP is present – and, consequently, result in a more linguistically motivated theory of subjectivity in natural language in general.

The goal of the chapter is twofold: 1) clarify the semantics and the compositional impact of overt judge-PPs found with subjective predicates; 2) contribute to an understanding of how judge-dependence is encoded in language, focusing on degree constructions. To approach these goals, I address the data on a variety of judge-dependent, or subjective, predicates with different linguistic properties, and try to find a system in this diversity.

To see if there is indeed a puzzle to solve, observe the fact that gradable predicates and degree constructions that show judge-dependency form quite a diverse landscape with respect to their subjective properties.

First, at least according to the *find*-test¹, *interesting* and *smart*, but not *tall*, are subjective both in the positive and the comparative form:

- (3) a. I find this book more interesting than that one.
 b. I find John smarter than Mary.
 c. *I find Mary taller than John.

Second, *interesting*, but not *smart* or *tall*, can take overt ‘judge’ PPs – *to*- or *for*-phrases introducing an opinion-holder:

- (4) a. This book is interesting **for / to me**.
 b. ??John is tall **for / to me**.
 c. ??Mary is smart **for / to me**.

Thus only looking at three gradable adjectives we already see three classes of judge-dependent expressions:

¹In what follows, I will not use *consider* as a test for subjectivity due to the lack of understanding of the semantics and subcategorisation properties of *consider*. Although the requirements of *find* are not absolutely clear either, as the reader will notice as the discussion proceeds, there are serious reasons to think that *find* is the closest we get in English to a pure ‘subjective attitude’ verb requiring of its complement to be subjective. Look at the following contrast:

- (i) a. ??I find the Earth flat.
 b. I consider the Earth flat.

The shape of the Earth is an objective fact, and thus it is unacceptable as a complement of *find*. *Consider*, to the contrary, is fine with the same complement, for most speakers, and describes the epistemic state of the subject. See the discussion in (Stephenson, 2007a,b; Saebø, 2009; Bouchard, 2012).

1. *Interesting*-class: subjective both in positive and comparative form, take judge PPs;
2. *Smart*-class: subjective both in positive and comparative form, no judge PPs;
3. *Tall*-class: subjective in positive but not in comparative form, no judge PPs.

How should this diversity be explained? Does this diversity force one to say that there are many ‘types of subjectivity’ in any theoretical sense or can these differences be factored out and accounted for independently? Could there be a fourth class – subjective only in the positive form, but taking a judge PP? What regulates the subjectivity in the comparative form and the acceptability of judge-PPs?

While subjectivity in the positive vs. in the comparative form has received some attention in the literature (Richard, 2004; Saebø, 2009; Paenen, 2011; Kennedy, 2012, a.o.), the distribution of judge PPs and what it tells us about the semantics of judge-dependence in general has basically never been studied. All the major existing theories of subjectivity predict judge PPs to be available in all subjective environments (Laser-son, 2005, 2009; Stephenson, 2007a,b; Stojanovic, 2007). This is not correct, as the examples above show – judge PPs are only available in a subset of subjective contexts.

In this chapter, I will look for a reason for such a limited distribution of judge PPs. This task will require close examination of different kinds of predicates and constructions showing subjectivity – the types 1-3 illustrated in the schematic ‘classification’ above, and more.

I will argue that the differences between these ‘types’ should not be encoded in the linguistic representation of judge-dependence, contra some recent suggestions in the literature (Kennedy, 2012). In certain cases, what matters is which item in the extended adjectival projection introduces subjectivity – the adjective itself or some functional building block of the degree construction it is part of. In other cases – and this is going to be the main contribution of the chapter – the differences between different predicates boil down to the restrictions they impose on the value of the contextual judge. These restrictions will differ from predicate to predicate. In both classes of cases, the linguistic ‘device’ for judge-dependence remains constant, and what differs is the class of items that can make reference to this ‘device’ and the restrictions it is subject to.

Factoring out these complications that obscure the picture of linguistic encoding of subjectivity or judge-dependence, I argue for an analysis of the classification in 1-3 above that involves one kind of subjectivity. To give the reader a preview of my analysis: I will propose that the presence of judge PPs with certain subjective predicates is due to their experiential semantics, which is an issue independent (to a certain extent) from the subjectivity of these predicates. The apparent extra argument that we see with some subjective predicates is the experiencer rather than the judge and thus it does not have to be treated as an essential part of subjectivity *per se*. The intuitive relation between the experiencer introduced by such predicates and the contextual judge is regulated by a principle that restricts the value of the judge parameter for the statements about one’s non-externalizable experience.

This would account for part of the sketchy typology of subjective items outlined above – namely, for the distinction between predicates that can co-occur with ‘judge’ PPs and the ones that can not. Subjective predicates that come with a ‘judge’ PP are **experiential** predicates projecting an experiencer argument that people have been referring to as the ‘judge’ argument; other subjective predicates are not experiencer predicates, and do not project an extra argument. One more ingredient is needed to derive the rest of the typology – namely, understanding why some predicates are subjective in the comparative, while others are not. The answer is that those predicates that are subjective in comparative form are lexically subjective, while adjectives like *tall* show subjectivity only in positive form because it is the positive morpheme POS that is subjective rather than the adjective itself. These decisions, together with a more articulated relation between experiencers of predicates like *tasty* or *interesting* and judges, is the core of a unified analysis of subjectivity taken up here.

This chapter has three main content blocks, or lines of investigation: one that establishes the structure and semantics of sentences with overt ‘judge’-PPs; one that looks for the right way to analyse judge-dependence in general; and one that concerns judge-dependence of individual classes of subjective predicates. The first two lines are intertwined logically and will be developing together linearly throughout the chapter. Proposals concerning particular classes of subjective predicates play a supplementary role in the discussion. I will primarily be concerned with establishing the fact that their source of subjectivity is **different** from the classes they can be distinguished from on the basis of their linguistic behaviour. Identifying the precise sources of subjectivity for these classes wouldn’t add much to the two main lines of this chapter. And even though I include some opinionated discussion of these issues in the chapter, I don’t see it as a full-fledged analysis. In order not to complicate the main text with these discussions, I have moved them to appendices.

The structure of the chapter is the following: first, in section 2.2, I introduce the necessary background on subjectivity in general and the core of the theoretical debate on the nature of subjectivity. I sum up the existing motivation for postulating a ‘judge’ argument for English predicates of personal taste (PPTs) in section 2.3. Then in section 2.4 I broaden the class of adjectives under consideration, discussing positive forms of adjectives like *tall* and the fact that they seem to lack an extra argument – an observation supported cross-linguistically. I consider the ‘two kinds of subjectivity’ analysis (Kennedy, 2012), in which subjectivity comes with a ‘judge’ argument for *tasty* and the like, and without a ‘judge’ argument for *tall* and the like. I argue that it is not explanatory enough in that it misses an important similarity between these alleged ‘judge’ arguments and experiencers found with experiencer predicates in general. I broaden the empirical domain further and include more predicates and constructions showing subjective behaviour. Thus I consider evaluative adjectives in section 2.5, extreme adjectives in section 2.6, and *too*-construction in section 2.7. I show that the cross-linguistically stable correlate of an extra argument is a reference to an experience event in the semantics of a predicate. So I will reject the need for a *judge* argument altogether. I close the chapter with a discussion of a relation between the experiencer argument and the judge, proposing a principle restricting the judge value to the experiencer in a description of a non-externalizable experience event.

In Appendices 1 and 2 of this chapter I give a more detailed analysis of subjectivity of the positive form of dimensional adjectives and evaluative adjectives, respectively.

2.2 Subjectivity: the background

2.2.1 Relative truth

Intuitively, there are statements whose truth is a matter of opinion (5-a) rather than a matter of fact (5-b) (Lasersohn, 2005, 2009; Stephenson, 2007a,b; Stojanovic, 2007; Anand, 2009; Cohen, 2010; Moltmann, 2010; Pearson, 2013, a.m.o.):

- (5) a. Roller coasters are fun.
b. Leo Tolstoy wrote ‘War and Peace’.

As simple as this intuition looks, sentences like (5-a) and the puzzles they give rise to are serious challenges for classic truth-conditional semantics. As one famous case, consider the following dialogue:

- (6) **A:** That ride was fun.
B: No it wasn’t!

(6) has a special status: on the one hand, A and B seem to disagree with each other, but at the same time neither of them appears to be at fault. This kind of exchange is known as SUBJECTIVE (or FAULTLESS) DISAGREEMENT (Lasersohn, 2005, 2009; Stojanovic, 2007; Stephenson, 2007a,b). Compare the dialogue in (6) with the one in (7) (Paenen, 2011, 6):

- (7) Paul just entered Chris’ room. Chris is wondering how he came in.
Chris: The door was closed.
Paul: No, it wasn’t.

In (7), either Chris or Paul are saying something false (which could potentially be checked), while (6) is compatible with both of the speakers speaking truthfully, which is puzzling as they seem to contradict each other at the same time. A definition of faultless disagreement common in the linguistic literature is from (Stephenson, 2007a):

- (8) SUBJECTIVE DISAGREEMENT:
a. Intuitively, the interlocutors disagree with one another.
b. There is a sense in which both speakers have said something true, so long as each was sincere in her expression of her opinion.
c. For this reason, the disagreement does not seem to be one that can be resolved.

The cases described in (8), at least on the face of it, seem immune to a simple analysis in terms of truth or falsity. At the same time, the existing theories of truth-conditional meaning assume that all assertive sentences are amenable to such an analysis. This is the core of the puzzle posed by subjective disagreement – Kölbel (2002) calls it *the*

problem of excessive objectivity of the existing theories of truth-conditional meaning. Accounts treating the excessive objectivity problem propose ways of introducing the opinion-holder into the picture and look for theoretical and empirical arguments that would help decide which option fits the data better. I next discuss two major classes of theories of subjectivity.

2.2.2 Two theories of subjectivity

Predicates that systematically give rise to subjective disagreement are known as predicates of personal taste (PPTs). I return to the question of which predicates exactly are the members of that class in more detail below, but for now it would be enough to refer to some defining properties that are discussed in the literature: 1) PPTs trigger subjective disagreement (when no overt ‘judge’-PP is present); 2) PPTs can take overt ‘judge’-PPs; 3) PPTs can be embedded under subjective attitude verbs like *find*.

There are two major classes of theories of semantics of PPTs, differing with respect to the way they introduce the judge, and, as a consequence, how they see the contribution of the ‘judge’ PP: what I will call **relativist** theories introduce a judge parameter as part of the index of evaluation (Lasersohn, 2005, 2009); **contextualist** theories make the judge an argument of a PPT that can be filled in contextually in the absence of an overt judge-phrase (Stojanovic, 2007), (Stephenson, 2007a,b) (with certain reservations). The labels ‘contextualist’ and ‘relativist’ come from the philosophical tradition, but have recently been adopted in the linguistic literature, see (Sæbø, 2009; Kennedy, 2012, a.o.). Not everyone may agree that the use of these terms in linguistic discussions this chapter is part of is accurate. I will use them as handy labels, making sure I am explicit enough about what I mean by these terms in what follows. I now describe both theories and suggest that there are reasons to believe that the contextualist theory seems to be a better fit for English PPTs.

A relativist semantics for PPTs

A relativist semantics of a PPT like *tasty* would include a judge index of evaluation along with the familiar world and time indices (Lasersohn, 2005, 2009) (these denotations ignore the fact that *tasty* is gradable):

- (9) a. $\llbracket \text{tasty} \rrbracket^{c:w,t,j} = \lambda x_e. x \text{ tastes good to } j \text{ in } w \text{ at } t$
 b. $\llbracket \text{This cake is tasty} \rrbracket^{c:w,t,j} = 1 \text{ iff this cake is tasty to } j \text{ in } w \text{ at } t.$

Lasersohn assumes a Kaplanian (1989) approach to meaning, which distinguishes two kinds of meaning – *character* and *content* – and can be represented schematically in the following way:

- (10) **Character** → Resolve indexicality → **Content** → Evaluate truth value

Kaplanian ‘character’ thus can be seen as a function from contexts to contents: when the values for indexicals contained in the context are supplied and the indexicality in

the character is resolved, the result is what Kaplan calls content – which, in turn, can get evaluated with respect to truth value.

If a sentence contains an indexical, say, a first person pronoun *I*, when uttered by different speakers it will have the same character but different content. See the following dialogue as an example:

- (11) **A:** I am a doctor.
 B: #No, I am not a doctor!

It sounds strange that a speaker B starts with a *no* – there is no sense of contradiction if the sentence expresses different **content** relative to the two speakers. Thus contradiction is a matter of content and not a matter of character (ignoring the potential complication with a metalinguistic *no*). This is how Lasersohn explains the sense of contradiction in the classic subjective disagreement case:

- (12) **A:** That ride was fun.
 B: No, it wasn't fun!

According to Lasersohn, speaker A asserts and speaker B negates the same content (\approx the ride was fun). What is different between *the ride was fun* uttered by different speakers is a parameter of evaluation of truth value.

The difference between PPTs and non-subjective items is that PPTs have a semantic value that can vary across judges for a fixed world and time. In other words, PPTs lack the property of JUDGE-RIGIDITY (Lasersohn, 2005; Anand, 2009):

- (13) α is JUDGE-RIGID iff $\forall t, w, j, k \llbracket \alpha \rrbracket^{c;t,w,j} = \llbracket \alpha \rrbracket^{c;t,w,k}$
 where *j* and *k* are judge indices.

With these pieces in place, we can again formulate the explanation for the puzzle of faultless disagreement under a relativist perspective. The conflict between the ‘faultlessness’ part and the ‘disagreement’ part is an illusion because these parts operate at different ‘levels’ of meaning. In a Kaplanian framework, the **CONTENT** of *The ride was fun* is the same no matter with respect to which judge the truth is evaluated. Thus the dialogue including *The ride was fun* and its negation form a natural case for disagreement, as the content of B’s response is the negation of the content of A’s utterance. At the same time, A’s and B’s utterances are compatible with each other in the sense that they can both be true when evaluated under different judge indices: the ride can be fun for A and be boring for B. In a nutshell, Lasersohn’s account relies on an assumption that the intuition of disagreement is operative on the level of content, while the ‘faultlessness’ part concerns the stage when the truth-values are assigned.

We can now return to the role of *for*- and *to*-phrases in the semantics of sentences with PPTs. If a judge is part of index of evaluation, then the judge *for*-phrase shifts the judge to the individual introduced by the *for/to*-phrase:

- (14) $\llbracket \alpha \text{ for / to } \beta \rrbracket^{c;w,t,j} = \llbracket \alpha \rrbracket^{c;w,t,b}$, where $b = \llbracket \beta \rrbracket^{c;w,t,j}$

Thus in a relativist semantics a *for/to*-phrase is a kind of a modifier. Note that sentences with an overt *for*-phrase do not trigger the faultless disagreement effect:

- (15) A: That ride was fun for me.
 B: #No, it wasn't fun for me!

For Lasersohn, (15) suggests that that sentences *That ride was fun* and *That ride was fun for me* have different content. The content of *The ride was fun* would map any judge individual (and world and time) to True if the ride was fun for that judge individual. But the content of *The ride was fun for me* will map any judge individual (and time and world) onto Truth if the ride was fun *relative to the speaker*. Thus *The ride was fun for me* has a content which does not show any variation in truth value according to the judge parameter.

Let me now introduce an alternative existing analysis of PPTs and subjectivity.

A contextualist semantics for PPTs

In a competing contextualist account, PPTs have a judge argument (that can be filled by a silent pronoun) (Stojanovic, 2007):

- (16) a. $[[\text{tasty}]^{c:w,t,(j)}] = [\lambda x_e. [\lambda y_e. y \text{ tastes good to } x \text{ in } w \text{ at } t]]$
 b. $[[\text{This cake is tasty } pro]^{c:w,t,(j)}] = 1$ iff this cake is tasty to $[[pro]]$ in w at t .

The details of implementation differ: the pronoun might have different referential properties, or there might be a choice out of more than one silent pronoun to occupy the judge argument position, etc. As an example, in the analysis developed in (Stephenson, 2007a,b), PPTs have a judge argument that can be filled by one of the two silent pronouns: a judge-denoting PRO_j or a *pro* that denotes a contextually salient individual. Note that a pronoun denoting a judge directly is a departure from a strictly contextualist analysis as it involves a crucial reference to the judge index of evaluation:

- (17) a. $[[PRO_j]^{c:w,t,j}] = j$
 b. $[[pro]]$ is supplied by some salient individual in the discourse
 c. $[[\text{This cake is tasty } PRO_j]^{c:w,t,j}] = 1$ iff this cake is tasty to j in w at t .

Let's turn again to the role of *for/to*-phrases in the semantics of sentences with PPTs. The semantics of a preposition introducing a judge phrase would be radically different under relativist and contextualist views. While for Lasersohn (2005, 2009) *for/to* is a judge-shifter, under a contextualist account, in contrast, *for/to* would be semantically empty – it would be an identity function, as all it does is introduce a judge argument (the judge index is in brackets to indicate that it doesn't play a crucial role in this analysis but does not have to be removed):

- (18) $[[\text{for / to}]^{c:w,t,(j)}] = \lambda y_e. y$

The motivation behind (strictly) contextualist analyses is based on reconsidering the status of faultless disagreement. Stojanovic (2007) basically argues that there is no such thing as faultless disagreement: all the apparent cases of faultless disagreement are really cases of misunderstanding – a misunderstanding concerning the referent of the judge argument in the opposing interlocutor’s utterance. In a sentence like *This ride was fun* the judge is left underspecified, and could be potentially the speaker him/herself, or the statement could be meant to be a more general, or generic one – a statement about the majority of the judges, or about the ‘normal’ judges according to the speaker etc. Judge genericity in statements with PPTs is discussed a lot in the recent literature, see in particular (Anand, 2009; Moltmann, 2010; Pearson, 2013). Under the contextualist analysis of judge-dependence, the potential (and, arguably, preferable) genericity of the implicit judge is captured by the generic operator *Gen* binding the judge argument of the PPT: *Gen_x [tasty for x]*.²

Thus, according to (Stojanovic, 2007), statements involving PPTs with no overt judge-phrase are ambiguous between generic and non-generic readings (a variable bound by *Gen* and a silent pronoun denoting an individual judge, respectively). Following a dialogue like (12), A could recognize the misunderstanding and disambiguate his/her statement with something like (19-a) or (19-b):

- (19) a. A: I am only saying this ride was fun **for me**.
 b. A: I found this ride fun, that’s all I am saying.

With this clarification, the disagreement seems to be taken away. In this way the core motivation for a relativist analysis of subjectivity developed in (Lasersohn, 2005, 2009) is removed.

Let me now turn to linguistic arguments that show that the status of the judge-PP with PPTs is more compatible with the contextualist rather than with the relativist analysis of subjectivity.

2.3 Judge PPs are thematic

There is evidence for PPTs having a ‘judge’ argument (in English). First of all, the very fact that judges can be expressed overtly opens a potential possibility of an analysis that reserves a slot for the judge in the PPT denotation, if these overt judge phrases can be shown not to have an adjunct status. Second, Stephenson (2007a,b) argues that the choice of the preposition introducing the judge is idiosyncratic, doesn’t have any semantic explanation, and has to be specified in the PPT lexical entry. This also strongly suggests the argumental status of the judge PPs:

²(Moltmann, 2010) and (Pearson, 2013) argue that there is a particular kind of genericity – first-person genericity – involved in the (default) interpretation of the covert judge argument, but I ignore this complication. Independently of the ‘type of genericity’, the common core of most of the generic analyses of statements with PPTs is the idea that the variable corresponding to the judge gets bound by *Gen*. The analysis developed in (Anand, 2009) is different though – Anand reports the generic flavour even for the sentences with overt judge PPs like *This ride was fun for me*. I will not take sides in this debate, as the issues of genericity are not central to the current discussion.

- (20) a. fun for Sue / *fun to Sue
 b. boring for Sue / ??boring to Sue
 c. tedious for Sue / ??tedious to Sue
 d. pleasurable for Sue / ??pleasurable to Sue
- (21) a. ??pleasing for Sue / pleasing to Sue
 b. *tastes good for Sue / tastes good to Sue
 c. ??tasteless for Sue / ?/OKtasteless to Sue
 d. ??funny for Sue / funny to Sue
- (22) a. ??tasty for Sue / ?tasty to Sue
 b. ??delicious for Sue / *delicious to Sue

One more syntactic test shows that English ‘judge’-PPs pattern with arguments rather than with adjuncts: they are not separable from PPTs by an adjunct, in the same way as verbal arguments are not separable from their verb (Paenen, 2011), based on (Fults, 2006):

- (23) a. John ate [_{arg} an apple] [_{adj} yesterday].
 b. *John ate [_{adj} yesterday] [_{arg} an apple].
- (24) a. The apple was tasty [_{judgePP} to Eve] [_{adj} yesterday].
 b. *The apple was tasty [_{adj} yesterday] [_{judgePP} to Eve].

More motivating data come from stacking of arguments vs. adjuncts: adjuncts are generally allowed to stack or iterate in a way arguments cannot (25). Glanzberg (2007); Schaffer (2011) argue that judge PPs pattern with arguments rather than adjuncts:

- (25) a. *John kissed Mary Sally.
 b. John kissed Mary on the beach under the stars at midnight.
- (26) a. *Sushi is tasty to me to Mary to everyone.
 b. *Roller coasters are fun for Ann for Ben for Claire.

While these contrasts look quite convincing (although the impossibility of stacking in (26) could be factored out under a relativist analysis like Lasersohn 2005, 2009 under an assumption that vacuous shifting is dispreferred), there were debates in the literature on whether they force an argumental analysis of the judge PPs (for a summary see Collins 2013). Moreover, there are facts that point in the opposite direction. Let’s look at one of these facts – namely, the lack of crossover effect with PPTs.

Lasersohn (2005, p. 681) observes that there is a contrast between an overt judge PP and the case when it is absent in the crossover environment – an environment where the moved element ‘crosses over’ a coreferential pronoun (see Postal 1971; Stanley 2000, a.m.o.). In the b-examples below a *wh*-item crosses over the position of an alleged judge argument (the a-examples are shown as a baseline as they do not involve crossover – the base position of the *wh*-word is higher than the judge):

- (27) a. Who was upset that the ride wasn’t fun?
 b. Whom did the fact that the ride wasn’t fun upset _ _ ?

- (28) a. Who was upset that the ride wasn't fun for him?
 b. ?Whom did the fact that the ride wasn't fun for him upset -- ?

What is interesting here is the contrast between (27-b) and (28-b): they would both be expected to be degraded under the assumption that PPTs always have to project a judge argument, overt or covert. Under this view, the difference in the acceptability of crossover sentences between the overt and covert case is unexpected. Lasersohn uses this contrast to argue against the argumental analysis of PPT judges.

Summing up, the tests for the status of the PPT judges are controversial and are subject to discussion. More or less the same properties were discussed in (Rákosi, 2006) dissertation for Dative experiencers on Hungarian data. Rákosi does not address the personal taste puzzle, but the observations and conclusion he makes about a class of constituents he studies is directly applicable to the 'judge' PPs with PPTs. The controversial properties of Hungarian Dative experiencers have led (Rákosi, 2006) to conclude that these phrases have a special status and fall within a category of 'thematic adjuncts' – they are selected by a predicate lexically, quite like arguments, though have some syntactic properties similar to adjuncts, first of all, optionality.

I will borrow Rákosi's solution and apply it to the 'judge' PPs with PPTs: despite the strange syntactic status of the 'judge'-phrases that makes them different in some ways from the canonic argumental phrases, they are still lexically introduced by a predicate, quite like the canonic arguments are. In what follows, I won't concentrate on the distinction between 'thematic adjuncts' and arguments, assuming that the former are not different from the latter in the relevant semantic sense, and their behaviour is exactly the same as the behaviour of certain classes of experiencers (in the final version of the analysis, I will treat judge-PPs as experiencer phrases, so this analogy is not a coincidence). For more details and tests of the status of such 'mixed' constituents with respect to the argument vs. adjunct syntactic distinction, see (Rákosi, 2006).

On the semantic side, it has been argued that there is a particular requirement holding between a PPT and its 'judge', which suggests a thematic relation between them. In particular, PPTs impose a DIRECT EXPERIENCE REQUIREMENT on their judge. Here is the relevant observation from (Pearson, 2013):

'In order to assert that x is P for some taste predicate P , one typically must have direct sensory experience of the relevant kind on the basis of which to judge whether x is P . For *tasty*, for example, I must have tasted the object I am talking about [...] If I have good reason to believe that shortbread is tasty, say because a reliable expert has told me so, I might say, *Apparently, shortbread is tasty*, but not, *Shortbread is tasty*'.

Similar observations about constructions with PPTs have been discussed in the literature before, for example, Stephenson (2007a,b) argues that in *find* + PPT construction *find* introduces an inference that the subject is basing his/her opinion on direct evidence:

- (29) Sam finds the cat food tasty. (Stephenson, 2007a, (99))

(29) is odd as it suggests that Sam have tried cat food – an inference that disappears if *find* is replaced by *think*:

- (30) Sam thinks the cat food is tasty. (Stephenson, 2007a, (98))

Stephenson (2007a,b) captures this fact by adding an evidential requirement to the semantics of *find*, otherwise similar to *think*: $\llbracket \text{find} \rrbracket = \llbracket \text{think} \rrbracket + \text{'and this is caused by } x \text{ having a direct experience of } p \text{ in } w \text{'}$.

Anand (2009) observes the direct sensory experience requirement on the use of PPTs + *for*-PP construction, which he analyses as part of semantics of *for/to*:

- (31) *Discussing a made to order entree at a much-favored restaurant:*
#Whatever she's making, it's tasty to me.

The observations made in (Stephenson, 2007a,b; Anand, 2009; Pearson, 2013) uncover a similar requirement across PPT constructions – namely, a 'direct experience' requirement. At the same time, Stephenson and Anand encode this requirement not as part of PPT lexical semantics, but rather as semantic contribution of other elements PPTs co-occur with – the verb *find* in *find*-construction, or *for* in the construction with the explicit judge PP. Importantly, what the *find*- and the 'judge'-PP-constructions have in common is an explicit judge (the subject of *find* and the complement of *for/to*) that excludes the generic interpretation of the judge. I suggest that the direct experience requirement is the property of a PPT itself, but it can be lifted in certain environments, for example, if the statement is a generalization (e.g., tasty for 'normal' perceivers in general).

To these subtle facts in English I add a fact from Japanese which makes the direct experience requirement on the PPT judge more visible. Japanese is known to have a 1st person constraint on the argument of direct perception predicates. This constraint is lifted when an evidential or a modal is used (Kuroda, 1965; Kuno, 1973; Tenny, 2006; McCready, 2007):

- (32) a. *watasi-wa / *anata-wa / *kare-wa sabisii desu*
I-TOP / you-TOP / he-TOP lonely COP
'I'm/You're/He's lonely'
b. *Mary-wa sabisii noda / ni tigainai / mitaida / hazuda*
Mary-TOP lonely EVID / there's.no.mistake / seems / must
'Mary must be lonely'

In contrast, predicates that do not describe direct perception do not show any special behaviour of the 1st person vs. 2/3-person subject – here illustrated with the predicate *wakai* 'young':

- (33) a. *watasi-wa / anata-wa / kare-wa wakai desu*
I-TOP / you-TOP / he-TOP young COP
'I'm/You're/He's young'
b. *Mary-wa wakai noda / ni tigainai / mitaida / hazuda*
Mary-TOP young EVID / there's.no.mistake / seems / must

‘Mary must be young’

This 1st-person constraint is usually explained in terms of privileged access to one’s own sensations and emotions, about which no direct external assertion can be made.

I observe that PPTs in Japanese are another environment where the constraint is observed, restricting the judge of PPTs without evidentials to 1st person only (for the judge, which can be either a *ni-wa* DAT-TOP or *ni-totte-(wa)* DAT-TOTTE-(TOP) phrase – dative case marker plus *totte* morpheme with unknown etymology plus an optional topic marker):³

- (34) a. *watasi-ni-(totte)-wa* /**John-ni-(totte)-wa* *kono keeki-wa oisii*
 I-DAT-TOTTE-TOP /*John-DAT-TOTTE-TOP* this cake-TOP tasty
 ‘This cake is tasty to me / to John’
- b. *John-ni-(totte)-wa* *kono keeki-wa oisii noda* / *ni tigainai*
John-DAT-TOTTE-TOP this cake-TOP tasty EVID / there’s.no.mistake
 ‘This cake must be tasty to John’

The same holds for *tanoshii* ‘fun’, *yoi* ‘good’, and *kimochiii* ‘pleasant’. The 1st person restriction on the judge of PPTs is the clearest possible illustration of direct experience requirement on PPT judges.

I take the facts discussed above to be good enough reasons to postulate an extra argument for PPTs (in English as well as Japanese, and possibly crosslinguistically). The linguistic behaviour of judge phrases strongly suggests a thematic relation between the predicate and the judge phrase, which manifests itself in the direct experience requirement on the semantic side, and idiosyncricity of the choice of a preposition along with facts on stacking and separability from the predicate, on the syntactic side. The relativist analysis developed in (Lasersohn, 2005, 2009) treats judge PPs as modifiers, which would make the whole range of properties described in this section totally unexpected. Therefore, I conclude that PPTs introduce an argument (or, more carefully, in Rákosi’s terminology, a thematic adjunct) that presumably corresponds to the role of ‘judge’. With this background, I will now introduce some complications that enter the picture when more adjectives and constructions are considered. But first I overview which adjectives are usually considered as PPTs, as this is the segment of the lexicon the above approaches were tailor made for. In what follows, I will show that if one looks at a wider class of subjective predicates, going beyond the classic PPTs, one will find out that a) not all subjective predicates project a ‘judge’-phrase; b) the ones that don’t also don’t exhibit the semantic effects of thematic relation between the judge and the subjective predicate – in particular, the direct experience requirement. I will use this fact to sever the licensing of ‘judge’-PPs from subjectivity *per se* and relate it to the experiential semantics of PPTs instead.

Let’s proceed by taking a second look at the members of the PPT class and how it relates to the class of subjective predicates in general. I will observe that PPTs form a subset of the set of subjective predicates, and consideration of non-PPT subjective

³Thanks to Yasutada Sudo for translations and judgements and to the audiences of FAJL6 in Berlin and ICL19 in Geneva for discussion.

predicates will be useful in probing the nature of subjectivity in natural language.

2.4 The members of the PPT class

Providing a list of PPTs is not an easy task. Most of the work on PPTs concentrates on *fun* and *tasty*, though even these two do not form a homogeneous class (e.g. *fun* takes infinitival arguments, while *tasty* does not: *To ski is fun* vs. **To eat cakes is tasty*).

Some descriptions of the PPT class members are found in the literature here and there: Kölbl (2004) says that these predicates have to do with ‘aesthetic, culinary or moral value, probability, justification of beliefs, and many others’. Anand (2009) provides the following list with further subcategories:

- (35)
- a. PROWESS: passable, acceptable
 - b. APPRECIATION: beautiful, handsome, ungrammatical
 - c. AFFECT: pleasant, scary, exhilarating
 - d. BENEFIT: dangerous, safe
 - e. ESTEEM: wise, foolish, historic
 - f. NORMATIVE: good, bad
 - g. VALUE: important, desirable, valuable
 - h. PROBABILITY: likely, improbable
 - i. PERCEPTION: red, blue

Pearson (2013, 3) limits her study of PPTs to predicates having the following three properties:

1. Can take an overt argument, as in *tasty to Mary* or *fun for John*;
2. Can occur without such an overt argument;⁴
3. Express statements whose truth is a matter of opinion when they occur without an overt judge.

Pearson’s examples include *attractive*, *boring* and *funny*.

A further often discussed potential defining property of PPTs is the possibility to be embedded under subjective attitude verbs like *find* (Saebø, 2009; Bouchard, 2012):

- (36)
- a. I find this cake **tasty**.
 - b. *I find Vera **four years old**.

There is a further fact characterizing (and probably restricting) the PPT class: though PPTs without an overt judge argument seem to be speaker-oriented most of the time, they don’t have to be. If the context is right, the perspective is not the speaker’s, but of the other salient individual (this fact is known as EXOCENTRICITY PUZZLE) (Laser-son, 2005; Stephenson, 2007a,b; Anand, 2009):

⁴I am not aware of any PPT-like predicates that do not satisfy Pearson’s condition 2 – i.e. that have an obligatorily overt judge PP.

- (37) EXOCENTRICITY (Stephenson 2007a, example attributed to von Stechow, p.c.)
Mary: How's that new brand of cat food you bought?
Sam: I think it's tasty, because the cat has eaten a lot of it.

As one more case of exocentricity consider questions, in which PPTs are systematically interpreted with respect to the hearer's perspective:

- (38) Is the meal tasty? (to the hearer)

The authors discussing exocentricity treat it as an essential part of the phenomenon of subjectivity and of the membership in PPT class, and thus for them every theory analyzing PPTs has to have a story to tell about exocentric uses of PPTs. I won't have much to say about exocentricity and subjectivity, leaving the full list of the conditions under which the judge can differ from the speaker for future work, but I will use the possibility of the judge taking different values in my analysis (see a discussion about perspective-shifting at the end of the current chapter).

Finally, membership in the PPT class is often linked to the property of SCALAR VARIATION – subjective ordering of objects along a scale (Laserson, 2009; Anand, 2009). Take *tasty* as an example. If its domain includes {bananas, apples, pears}, two different individuals A and B might potentially order the elements in this domain in a different way. Borrowing the device of measure functions from degree semantics (Kennedy, 2007, a.o.), one can express this idea more formally. A measure function takes an individual as its input and returns a degree that corresponds to this individual on a certain scale. In the current example, the individual would be the member of the {bananas, apples, pears} domain, and the scale would be the scale of tastiness. However, for predicates of scalar variation this measure function would have to be parametrized to one more individual – opinion-holder. For example, A's measure function $TASTY_A$ can result in the following ordering on the domain: (pears, apples, bananas); while B's $TASTY_B$ can give a different result: (bananas, pears, apples). This contrasts with measures like HEIGHT that order objects objectively – independently of any opinion-holder.

Indeed, more work is needed to figure out to what extent these tests pick a natural class of predicates, how different this class would be if one factored out some of these characteristics, and to what extent the traditional notion of PPTs coincides with the class picked by the tests discussed above. It is clear that the class of adjectives listed here is quite diverse, for example, the ability to take *for-to*-phrases divides it and other potential PPTs into two further classes:

- (39) a. John is attractive/boring/funny for/to me.
 b. *John is lazy/industrious/smart/silly for/to me.

In what follows, when I use the term 'PPT', I will refer to typical PPTs like *tasty* or *fun* – i.e. those that have all of the major PPT properties discussed in this section (subjective disagreement uses, embedding under *find*, exocentric uses, an 'overt judge' option, and the property of scalar variation). As a consequence, many predicates are not PPTs whilst they have some but not all of these properties. I will show that a focus

on PPTs only misses out on potential data concerning properties normally associated with subjectivity. Thus, by studying a wider class of adjectives, we can study subjectivity rather than its subtype known as ‘personal taste’, and the relation between personal taste and subjectivity *per se*.

In the next sections, I address different classes of adjectives showing subjectivity effects in different degree constructions, with special attention to the status of expressions allegedly introducing the overt judge. I focus on how the semantic differences between these subjective predicates and PPTs correlate with the licensing of overt judge or lack thereof. For a more detailed discussion of the sources of subjectivity in the major groups of adjectives described below, I address the reader to Appendices 1 and 2, as this is an issue to a large extent independent from the main line of the current discussion.

I start with dimensional adjectives and the problems they pose for the contextualist analysis defended for PPTs above.

2.5 The positive form of dimensional adjectives

This section discusses dimensional adjectives (DAs) like *tall*, *wide* or *heavy* and their subjectivity. The accepted characteristic property of DAs is that they measure the object’s characteristics along the measurable scales (such as height, width, weight etc.) (Kennedy, 2007, and references therein). This contrasts with typical PPTs that order objects along their scale subjectively and thus are predicates of scalar variation. In contrast, DAs order objects by their weight or height independently of the opinion-holder: if John’s height exceeds Bill’s height, this ordering wouldn’t change depending on who’s observing their height or making the statement.

Nevertheless, DAs are known to be subjective. Richard (2004) points out that they can show faultless disagreement (see also Anand, 2009; Moltmann, 2010; Paenen, 2011; Kennedy, 2012):

- (40) **A:** Carla is rich/thin/heavy/old/young/short.
 B: No she’s not!

They pass the other familiar test for subjectivity as well – namely, they can be embedded under *find* (see Bouchard 2012 for a comprehensive discussion, but also see Kennedy 2012 for a judgement that DAs under *find* are slightly degraded – I will return to this issue later on):

- (41) John finds this river deep.

Observe that DAs are only subjective in the positive form: DAs in comparative constructions do not trigger subjective disagreement and are bad with *find* (Paenen, 2011; Kennedy, 2012):

- (42) a. **A:** Apples are tastier than bananas. SUBJECTIVE DISAGREEMENT
 B: No, they are not!

- b. **A:** John is taller than Bill. OBJECTIVE DISAGREEMENT
B: No, he's not!
- (43) a. I find apples tastier than bananas.
 b. *I find John taller than Bill.

As it is the positive form of a DA (POS-DA) that is subjective, the existing analyses locate judge-dependence of POS-DAs in POS. Importantly for the current discussion, the existing implementations of POS subjectivity opt for a contextualist analysis, totally parallel to the PPT case (Saebø, 2009; Paenen, 2011):

- (44) a. $\llbracket \text{POS} \rrbracket = \lambda G_{\langle d, et \rangle} \lambda x_e . \mathbf{max}(\lambda d . G(d)(x)) > \mathbf{norm}(G)$
 b. $\llbracket \text{POS}_{\text{subjective}} \rrbracket = \lambda G_{\langle d, et \rangle} \lambda x_e \lambda z_e . \mathbf{max}(\lambda d . G(d)(x)) > \mathbf{norm}(G)(z)$

(44-b) adds an extra argument z_e to the denotation of POS, corresponding to the judge. This argument is used as an input to the standard-calculating function **norm**, so that the standard of comparison used by POS is now judge-dependent.

Let's see if the motivation for introducing a judge argument that I presented for PPTs would hold for POS-DAs as well. The next subsection presents the data, followed by my conclusion that the contextualist analysis for POS-DAs cannot be adopted.

2.5.1 The data

The motivation for the judge argument discussed in section 2.2.2 consisted of two main pieces of evidence – syntactic and semantic. The first and obvious 'syntactic' consideration was the possibility – and the idiosyncratic choice – of the preposition introducing the overt judge. This argument (and further ones testing the status of these PPs) is not valid with POS-DAs as they seem to not take judge PPs at all:⁵

- (45) a. The ride was fun for John.
 b. *The Dom Tower is tall for John.

The only way to specify the POS-DA judge is (for most speakers) a sentence-initial *for*-phrase separated by comma-intonation, or other sentence-level expressions introducing perspective overtly:

- (46) a. For John, the Dom Tower is tall (though I disagree).

⁵Sometimes *for*-phrases do appear with POS-DAs:

- (i) This river is a bit deep for John.

Importantly, these *for*-PPs have a different semantics – they are not judge or experiencer PPs. They do not have to denote animate individuals, which is incompatible with judge/experiencer semantics:

- (ii) This table is a bit wide for our truck.

Third, there is a modal component involved in the interpretation of these sentences: (i) does not simply mean that the river is deep given John's evaluation of its depth, but rather it means something like 'This river is a bit deep for John to swim in', and (ii) means something like 'This table is a bit wide for our truck to carry'. I discuss *for*-phrases and infinitival clauses in modal degree constructions in section 2.7.

- b. For someone like me, this bag is heavy.
- c. In John's opinion / According to John, the Dom Tower is tall.

How would one explain this fact under the usual contextualist analysis of subjectivity? If judge-dependence by itself implies the presence of an extra 'judge' argument, why the difference between judge-dependent PPTs and judge-dependent POS-DAs with respect to linguistic evidence for an extra argument?

One option would be to say that incompatibility of English POS-DAs is somehow a matter of lexical idiosyncrasy of *tall*, *wide*, or *heavy* in the same way as *fun* or *tasty* take an idiosyncratic PP judge argument. However, the difference in the way PPTs and POS-DAs treat their judges is found across languages systematically (though there will be one exception that I discuss later on in this chapter). Here is parallel data from Russian. In Russian, PPTs take a Dative argument corresponding to the 'judge'. But these Dative judge DPs are not compatible with POS-DAs, and one of the alternative ways to specify the opinion-holder must be used:

- (47) a. **Mne** etot fil'm byl **neinteresen** RUSSIAN
 I.DAT this film PST **not.interesting**
 'This film wasn't interesting for me'
- b. ***Mne** Ejfeleva bashn'a **vysokaya**
 I.DAT Eiffel tower **tall**
 'For me, the Eiffel Tower is tall'
- c. **Di'a men'a** / Po-moemu, Ejfeleva bashn'a **vysokaya**
 For me / In.my.opinion Eiffel tower **tall**
 'For me, the Eiffel Tower is tall'

Even in languages that can have Dative DPs both with PPTs and with POS-DAs, quite often a closer look reveals crucial difference in the status of these phrases. One example is Hungarian, where Dative DPs are acceptable both with *important* and with *tall* (Julia Bacskai-Atkari and György Rákosi, p.c., see Rákosi 2006 for a study of Dative experiencers in Hungarian):

- (48) a. János-nak fontos-ak vagyunk HUNGARIAN
 John-DAT important-PL be.1PL
 ≈ 'John finds us important'
- b. János-nak minden felnőttség magas
 John-DAT every adult tall
 'For John, all grown-ups are tall'

However, Dative DPs in these two sentences have different properties, suggesting that in the case of *important* we are dealing with an argument (or, as Rákosi argues, 'thematic adjunct', which I have used as basically synonymous to 'argument' for my purposes), while in the latter case with *tall*, the Dative DP is not a thematic element but an adjunct not introduced by the predicate lexically. One of the tests is anaphor binding, possible with *interesting* and ungrammatical with *tall* (for more tests see Rákosi 2006):

- (49) a. Egymás-nak fontos-ak vagyunk HUNGARIAN
 each.other-DAT important-PL be.1PL
 ‘We are important to each other’
 b. ??Egymás-nak minden felnőtt magas
 each.other-DAT every adult tall
 ≈ ‘All grown-ups find each other tall’

I conclude that there is a systematic contrast between PPTs and POS-DAs in how their judge-dependence is linguistically represented. POS-DAs in the languages that I have been discussing so far do not project a ‘judge’ thematic role, in contrast with PPTs across languages, as the data above suggest.

If the subjectivity does not originate in a thematic judge role associated with the positive form, then what alternative source of subjectivity could we envision? The option that immediately springs to mind is that the judge-dependence of the positive form of DAs is a function of the particular way in which speaker has arrived at the standard of comparison. Deciding what the cut-off point for a gradable predicate is depends on a plethora of parameters, each of which could potentially introduce judge-dependence. To maintain the flow of the current discussion, I will for now leave open which of these are indeed likely sources of subjectivity. I will discuss this in more detail in Appendix 1, where I will also talk about a counterexample to the generalisation made in this section – namely, the distribution of Japanese dative arguments.

2.5.2 Theoretical consequences

Above I suggested a systematic contrast between PPT judges and POS-DA judges: PPTs project a thematic role corresponding to the ‘judge’, while POS-DAs in the languages I considered do not project a ‘judge’ thematic role. If this contrast is indeed a systematic one, as the data above show, it does need a systematic explanation. One explanation that has been suggested in the literature (though not for the same set of data) is that there are ‘two types of subjectivity’ in natural language (Kennedy, 2012). The core of the idea is that language might in principle involve different devices for encoding subjectivity linguistically, and we might find more than one way actually attested. In particular, both the relativist and the contextualist theories of judge-dependence in language might be correct, but each of them would have its own scope. Say, postulating a judge argument would be a natural move for *tasty*, but not for POS-*tall*. Thus, in the former but not in the latter case subjectivity would have type-theoretic consequences. Although Kennedy (2012) does not directly argue for a relativist view on subjectivity of POS-DAs, this would be one of the options compatible with the picture the paper presents. Summing up this take on the ‘two types of subjectivity’ view in the formulation that is in line with the current discussion would amount to the following (again, note that this particular proposal for POS-DAs is not made in Kennedy 2012, although (51) is compatible with it):

- PPTs are judge-dependent in a **contextualist** way:

$$(50) \quad \llbracket \text{tasty} \rrbracket^{c;w,t,(j)} = [\lambda x_e. [\lambda y_e. y \text{ tastes good to } x \text{ in } w \text{ at } t]]$$

- **POS** is judge-dependent in a **relativist** way:

$$(51) \quad \llbracket \text{POS}_{\text{subjective}} \rrbracket^{c;w,t,j} = \lambda g_{\langle ed \rangle} \lambda x_e. g(x) \geq s^j(g)$$

As a motivation, Kennedy (2012) discusses embedding under *find* and reports a slight contrast between PPTs under *find* (perfectly acceptable) and POS-DAs (slightly degraded):

- (52) a. Anna finds her bowl of pasta tasty/delicious/disgusting.
 b. ??Anna finds her bowl of pasta big/large/small/cold.

According to (Kennedy, 2012) and (Saebø, 2009), *find* takes complements of semantic type $\langle et \rangle$, which would be exactly the type of the small clause complement like *her bowl of pasta tasty* from (52-a) if the judge argument is abstracted over: $\lambda x. [\text{her bowl of pasta is tasty to } x]$. This solution presupposes a contextualist analysis of subjectivity of PPTs like *tasty*. Thus, the degraded status of (52-b) would be explained if POS-DAs lack a judge argument to abstract over, and for this reason they are of the wrong semantic type to be embedded under *find*.

Though in general I find Kennedy's two type of subjectivity analysis a worthwhile option to consider when approaching the problem of differences between PPTs and POS-DAs, I had a problem confirming this particular piece of data. I had 26 English speakers rate sentences with different classes of adjectives under *find* on a scale of acceptability from 1 to 7, then I averaged the scores for each sentence. The result was 6 for *tall* and *deep* (to compare, *tasty* is 6.4, *gigantic* is 6, *pretty* is 6.6, *smart* 6.2). This preliminary estimation does not count as a reliable empirical study, of course, but it can be used as a pilot that provides some visible correlate of the speakers' intuitions about different adjectives in this context.

Given these intuitions, I can't accommodate Kennedy's generalization and say following him that *find* is sensitive to type-theoretically implemented subjectivity – i.e. that it embeds only those subjective items that have an extra argument slot for the judge. See also Bouchard (2012) for a comprehensive critique of this approach (first suggested in Saebø 2009), revealing serious problems for a type-driven analysis of *find* independently of POS-DA vs. PPT behaviour. And finally, maybe most importantly, what Kennedy's account fails to explain is why the contrast between (52-a) and (52-b) is such a slight one, if it's there. It would be quite surprising given that the requirements of *find* are rigidly type-theoretic (again, see Bouchard 2012 for an analysis of *find* in non-type-theoretic terms).

On the other hand, the effect Kennedy reports might be there in some form – it's true that some of the English speakers find a different interpretation very prominent in this context: an interpretation involving a standard relative to a norm or a purpose (somewhat similar to the semantics of *too*-construction):

- (53) John finds this river deep \approx John finds this river too deep.

I tentatively suggest that the ‘slightly degraded’ judgement Kennedy talks about might in fact be a processing difficulty due to the ambiguity of these sentences and the fact that the subject presented with a sentence like (53) has a problem choosing the interpretation out of the blue. Both of the interpretations involved are subjective, but in two slightly different ways. The ‘modal’ reading is subjective by virtue of the modality involved: the depth of the river is evaluated with a certain purpose in mind (John swimming in the river, or walking through the river etc.), thus the comparison class includes the rivers from a set of possible worlds restricted to those where the river satisfies certain conditions dictated by the particular purpose.⁶ Naturally, the set of worlds to include is dependent on the judge – in this case, John.

The other – non-modal – reading of (53) has to have some other reasons for subjectivity: subjective comparison classes, subjective standard-calculating function, and/or subjective sufficient difference between the standard and the subject of the gradable predicate on a scale in question. I discuss these reasons in more detail in Appendix 1 of the current chapter. Importantly, what can be concluded from data in (45), (47) and (49) is that none of the two subjective readings of POS-DAs like *POS-tall* host a ‘judge’ argument the way PPTs do. In this I agree with Kennedy (2012) – but on different data and probably with some consequences for *find* and its requirements.

Therefore, there indeed seems to be a systematic difference between the linguistic manifestation of subjectivity of PPTs and POS-DAs – while the former pattern under a contextualist analysis and have a thematic slot for the ‘judge’, the latter do not have such a slot and thus suggest an analysis along the relativist lines.

What is the relevant semantic difference between predicates like *fun* or *tasty* and predicates like *POS-tall* or *POS-wide* that results in different argument frames?

According to Kennedy’s proposal, the relevant difference is between predicates encoding subjective vs. objective measure functions, which is roughly equivalent to the distinction between predicates of scalar variation vs. other gradable predicates, as discussed in section 2.4. Indeed, the scale of height is a totally objective one and objects are ordered on this scale independently of any observer or opinion-holder. To the contrary, the order of objects on the scale of taste would be different depending on who is making the judgement about the taste of the object. This, Kennedy suggests, motivates the presence of an extra argument in *tasty*, but not in (*POS-*)*tall*.

I propose an alternative explanation. I suggest that there is another difference between PPTs and POS-DAs, and that this other difference is responsible for the observed different pattern of argument projection. As discussed in some detail in section 2.2.2 above, PPTs show a ‘direct experience requirement’ – the statement like *This cake is tasty* can be made only if the judge has had direct perceptual experience involving the subject (i.e. has tasted the cake). For me this means that PPTs lexically include a reference to an experience event as part of their semantics, while POS-DAs don’t. As experience events involve an experiencer, an extra argument gets projected in the case of PPTs but not POS-DAs.

⁶See Chapters 3 and 4 for detailed discussion of purpose-relativity and modality in comparison classes, respectively.

In other words, the subjectivity of PPTs has its source in the non-externalizable experience they semantically refer to. POS-DAs are subjective for an altogether different reason, namely because different judges calculate the standard of comparison in different ways. Once again, I will leave the discussion of the precise relation between judge-dependence and standard-calculation for the appendix. This is because for now I want to focus on my main claim: whilst the intrinsic reference to a non-externalizable experience that PPTs have implies the presence of an experiencer argument, there is no such implication to the judge-dependence of standard calculation.

As it stands, we have two potential theories of the observations made so far: a) subjective predicates that project an extra argument are predicates of scalar variation (Kennedy, 2012); b) such predicates have an experiencer semantics. Dimensional adjectives fail to provide data that decide between these theories. The deciding evidence would come from predicates that lexicalize a subjective measure function, but do not refer to a non-externalizable experience. The class of predicates with these properties is, I argue, the ‘evaluative adjectives’ as described in (Bierwisch, 1989). I look at these predicates in the next section.

2.5.3 Summary of the section and an outlook

We have observed in this section that subjectivity does not entail the projection of an extra argument. While both PPTs and POS-DAs are perfectly subjective, I suggest that they differ in two (correlating) ways: POS-DAs do not refer to ‘experience’ and don’t project an extra argument (in Russian, English and Hungarian); PPTs, to the contrary, refer to experience and do project an extra argument. Thus the presence or absence of this extra argument doesn’t come with the subjectivity *per se*, but rather is an orthogonal issue (to an extent).

However, the reason for the observable differences between PPTs and POS-DAs could not be settled looking at these two classes of subjective predicates alone. Kennedy (2012) suggests that PPTs project an extra argument because they are predicates of scalar variation, while POS-DAs are not. I propose instead that the reason has to do with experiential semantics of PPTs that POS-DAs lack. In the rest of this chapter, I argue for this view and against Kennedy’s suggestion.

To argue for this point, in the next sections I look at more classes of adjectives and degree constructions. One obvious class of predicates to include in the discussion is the class of evaluative adjectives like *smart* or *lazy*. This is a class of predicates that, like *tasty*, are predicates of scalar variation, but do not refer to an experience event. Then I consider a class of extreme adjectives like *gigantic*, making the same point, but also shedding light on Japanese data that I introduced as less clear. From the example we saw in the section on POS-DAs, it could seem in Japanese an extra argument is projected whenever subjectivity is involved. However, Japanese extreme adjectives provide a clear contrast with Japanese POS-DAs and PPTs in the projection of an experiencer (unavailable with extreme adjectives). I give an analysis that sheds light on this contrast. Then I talk about modal degree constructions that sometimes appear with *for*-phrases that superficially look like judge/experiencer PPs. I show that these *for*-phrases have to be given a different analysis. Finally, I elaborate on the relation

between the experiencer and the judge.

I now move on to evaluative adjectives.

2.6 Evaluative adjectives

Evaluative adjectives are a class of gradable predicates described in (Bierwisch, 1989). They are associated with scales that are not objective physical measures (unlike dimensional adjectives), and in this they resemble PPTs. Indeed, these classes of predicates are similar in many respects. In fact, Kennedy (2012) uses the term ‘evaluative adjectives’ to talk about what seems to be the joined class of PPTs and evaluative adjectives. Here are some evaluative adjectives found in Bierwisch’s paper:

charming, lazy, ugly, stupid, smart, brave, cowardly, fearful, timid, clever, intelligent, brilliant, idiotic, foolish, pretty, beautiful, gorgeous, handsome, hideous

Evaluative adjectives are no doubt subjective. Again, the usual tests are faultless disagreement and embedding under *find*, which evaluative adjectives pass both in positive and comparative form:

- (54) a. **A:** Mary is pretty! SUBJECTIVE DISAGREEMENT
 B: No, she’s not!
 b. John finds Mary pretty / smart / lazy.
- (55) a. **A:** Mary is prettier than Anna! SUBJECTIVE DISAGREEMENT
 B: No, she’s not!
 b. John finds Mary prettier / smarter / lazier than Anna.

Subjectivity in comparative form signals that evaluative adjectives are PREDICATES OF SCALAR VARIATION, just like classic PPTs like *tasty* (see the definition in section 2.4 above). Do PPTs and evaluative adjectives form one group with respect to the semantics of their subjectivity, the way it is linguistically encoded, and the way it is syntactically manifested? On the face of it, the answer to this question is positive, but the data that follow will show that it is not the case. Let’s turn to the data.

2.6.1 The data

Firstly, quite like POS-DAs and unlike PPTs, evaluative adjectives in English do not take overt ‘judge’ arguments. The only way to express a judge with evaluative adjectives are sentence-level *for-* or *to-* phrases, or other perspective-setting expressions, separated from the rest of the sentence by COMMA intonation:

- (56) a. ??Mary is pretty / smart / lazy for / to John.
 b. In John’s opinion / For John / (?)To John, Mary is pretty / smart / lazy.

In Russian, the dative argument is not licensed with evaluative adjectives either:

- (57) *Mne / (?)DI'a men'a / Po-moemu Vas'a umnyj
 I.DAT / for me / in.my.opinion Vasya smart
 'For me, Vasya is smart'

As a further illustration, recall the contrast between Dative 'judge' DPs with PPTs and POS-DAs in Hungarian: the former are thematic and thus if they contain an anaphor, it can be bound by the subject, while POS-DAs do not project a thematic Dative DP and thus anaphors inside it are out. The same holds for evaluative adjectives: they pattern with POS-DAs rather than with PPTs and thus do not project an extra argument (Rákosi, 2006):

- (58) a. János-nak szép-ek vagyunk
 John-DAT beautiful-PL be.1PL
 'For John, we are beautiful'
 b. ??Egymás-nak szép-ek vagyunk
 each.other-DAT beautiful-PL be.1PL
 '≈ We find each other beautiful'

Turning to Japanese data, recall the two ways a judge can get expressed: it can be either a topicalized Dative DP (*John-ni-wa* 'John-DAT-TOP') or a *ni-totte(-wa)* phrase (Dative case marker plus *totte* morpheme with unknown etymology plus an optional topic marker). So far – with PPTs like *tasty* and with POS-DAs – the two ways to express a judge behaved in the same way, being basically interchangeable. Interestingly, and unlike with PPTs/POS-DAs, a *ni-wa* judge phrase is not possible with evaluative adjectives in Japanese at all, no matter if the judge is first, second, or third person:

- (59) a. *watasi-ni-wa / *anata-ni-wa / *John-ni-wa Mary-wa namakemono
 I-DAT-TOP / you-DAT-TOP / John-DAT-TOP Mary-TOP lazy
 da / darou
 is / EVID
 'Mary is / must be lazy for John'
 b. *watasi-ni-wa / *anata-ni-wa / ?*John-ni-wa Mary-wa kasikoi
 I-DAT-TOP / you-DAT-TOP / John-DAT-TOP Mary-TOP smart
 (darou)
 EVID
 'Mary is / must be smart for John'

The only way to express a judge is the *ni-totte(-wa)* phrase, which can be used with all other judge-dependent expressions as well; in this case, an evidential is not necessary even with a third person judge:

- (60) a. John-ni-totte(-wa) Mary-wa namakemono da / darou
 John-DAT-TOTTE-(TOP) Mary-TOP lazy COP / EVID
 'Mary is / must be lazy for John'
 b. John-ni-totte(-wa) Mary-wa kasikoi (darou)
 John-DAT-TOTTE-(TOP) Mary-TOP smart EVID

‘Mary is / must be smart for John’

This pattern is quite surprising under the assumption that the presence of an extra argument follows from subjectivity – the unavailability of *ni-wa* as a way to express the judge would remain unexplained. Evaluative adjectives are the first point where the distributions of *ni-wa* and *ni-totte-wa* phrases differ.

2.6.2 Theoretical consequences

The data in section 2.6.1 show a systematic contrast between PPTs and evaluative adjectives in all the languages we have considered so far. How does this fact fit the picture we’ve had so far? Recall from the previous section that we have already encountered the contrast between subjective predicates that project a ‘judge’ argument and the ones that don’t. The issue that couldn’t be settled with the help of the data we had by the end of the last section was the exact factor that is responsible for a subjective predicate projecting or not projecting an extra argument. We had two hypotheses: one (due to Kennedy 2012) was that predicates of scalar variation project an extra argument, while other subjective predicates don’t; my alternative hypothesis was that the relevant factor is reference to an experience event. Evaluative adjectives discussed in the current chapter are a crucial case to make the choice between these two factors.

It is useful to look at the source of subjectivity of evaluative adjectives. I suggest that subjectivity in evaluative adjectives is, most prominently, related to the multidimensionality of such predicates (see Sassoon 2012). There are different parameters or dimensions of, for example, being smart (maths skills, good memory etc.), and the impact of these dimensions in the overall evaluation can vary from judge to judge. This results in a subjective ordering along the overall scale associated with an evaluative adjective. Thus, predicates like *smart* or *lazy* are predicates of scalar variation, but they do not refer to internalized experience as part of their semantics (unlike *tasty*). I go into more detail of the multidimensionality as a source of subjectivity in Appendix 2, as they are not the central point of the current discussion. What is important here is that evaluative adjectives constitute a case of non-experience predicates of scalar variation. The fact that evaluative adjectives still do not license overt judge phrases falsifies Kennedy’s (2012) theory of scalar variation as the source of the judge-argument licensing. The idea that the relevant licensing condition is reference to an experience event thus gets further support.

A few words need to be said about my take on the Japanese data presented in this section and the difference between two ways of introducing the judge that Japanese shows. I suggest that Japanese *ni-wa* phrases are available in the environments where an argumental DP is expected, while *ni-totte-wa* phrases are available in all judge-dependent environments across the board. Thus I believe that *ni-wa* phrases should be seen as an analogue of English thematic *for/to* phrases, Hungarian thematic dative DPs and Russian dative DPs, while *ni-totte-wa* phrases are more like sentence-level expressions introducing a perspective-holder – expressions like *in John’s opinion* or sentence-initial *for*-phrases with COMMA intonation. I suggest that the judge-index shifter semantics in the lines of what Lasersohn (2005, 2009) initially proposed for

‘thematic’ *for/to* PP (see also section 2.2.1) is a promising view on the semantics of expressions like Japanese *ni-totte-wa* phrases across languages. I will provide an explicit semantics for these expressions when I formulate the final version of the analysis. I conclude that Japanese patterns with English, Russian and Hungarian in not introducing an extra argument associated with judge-dependence of evaluative adjectives.

To sum up the contribution of this section, crucially, the core of the subjectivity of evaluative adjectives has nothing to do with an experience of any sort. The contrast between PPTs and evaluative adjectives in their argument-licensing properties is naturally explained under this view, and again supports the claim that subjectivity *per se* or ‘subjective assessment’ does not have to come with an extra argument.

2.7 Extreme adjectives

A further case to consider is the class of so-called ‘extreme adjectives’ described in (Morzycki, 2012a):

gigantic, excellent, huge, monstrous, hideous, microscopic, gorgeous, fantastic

These adjectives pick a very high value on a certain scale: ‘excellent’ arguably uses the same scale as ‘good’, but refers to very high values on this scale. Some of the extreme adjectives are associated with the same objective scales as dimensional adjectives (height, weight etc.), but even those ones are clearly subjective, although the scale they are associated with refer to an objective, measurable scale:

- (61) a. **A:** The Dom Tower is gigantic! SUBJECTIVE DISAGREEMENT
 B: No, it’s not!
 b. Mary finds John huge / gigantic.

Extreme adjectives don’t have comparative forms altogether (for possible reasons see Morzycki 2012a), so one can’t check if their comparative forms are subjective:

- (62) ??more gigantic / huge / microscopic ...

The question to ask about these adjectives is – again – if their subjectivity entails the presence of an extra argument, and why.

2.7.1 The data

Unlike PPTs, in English these adjectives don’t take judge-PPs:

- (63) ??John is gigantic / huge for / to Mary.

In Japanese, extreme adjectives don’t go well with *ni-wa* judges; preferably, they take a *ni-totte-wa* judge, without the 1st person constraint (in this they are similar to Japanese

evaluative adjectives, in contrast with Japanese PPTs and POS-DAs):⁷

- (64) a. ?John-ni-wa Mary-wa gokuhin darou
 John-DAT-TOP Mary-TOP destitute evid
 ‘Mary must be extremely poor for John’
 b. John-ni-totte(-wa) Mary-wa gokuhin da
 John-DAT-TOTTE(-TOP) Mary-TOP destitute cop
 ‘Mary is extremely poor for John’

Russian patterns with Japanese and English in not allowing Dative DPs as arguments of extreme adjectives:

- (65) *Mne / (?)Dlja menja / Po-moemu Ejfeleva bashn’a ogromnaja.
 I.-DAT / for me / in.my.opinion Eiffel tower huge
 ‘For me, the Eiffel tower is huge’

Hungarian behaves in a parallel way to English, Russian, and Japanese in not introducing thematic judge for extreme adjectives. The Dative DP found with predicates like *gigantic* can be shown to be a non-thematic adjunct, for example, according to anaphoric binding test that I borrow from (Rákosi, 2006) (see also the section on POS-DAs):

- (66) a. János-nak minden felnőt看 hatalmas
 John-DAT every adult gigantic
 ‘For John, all grown-ups are gigantic’
 b. ??Egymás-nak ez a két baseball játékos hatalmas
 each.other-DAT this the two baseball player gigantic
 ≈‘These two baseball players find each other gigantic’

Thus all the four languages we use for our limited data about cross-linguistic behaviour of ‘judge-arguments’ pattern in not having an extra argument associated with judge-dependence of extreme adjectives.

2.7.2 Theoretical consequences

Let us concentrate on the semantics of extreme adjectives and the source of its subjectivity.

At least some of the extreme adjectives are not predicates of scalar variation, as they use objective dimensional scales (SIZE, HEIGHT etc.). According to Morzycki’s (2012) analysis, they involve a requirement of having gone ‘off the scale’ of contextually-provided degrees *C* – *gigantic* means something like ‘so big that this size is not in the size range one normally talks about’. So the denotation of extreme adjectives involves exceeding the greatest degree in contextual degree interval *C*:

⁷The contrast between *ni-wa* and *ni-totte-wa* judges is for some reason weaker for extreme adjectives than for evaluative adjectives, but the sentence with *John-ni-wa* is still slightly degraded. I do not have an explanation for why the contrast is weak.

$$(67) \quad \llbracket \text{gigantic} \rrbracket = \lambda x. \mathbf{max}(\lambda d. \text{BIG}(d)(x)) > \mathbf{max}(C)$$

This account is built on an idea of contextual domain restrictions discussed in (Westerstahl, 1984; Schwarz, 2009; von Stechow, 1994), illustrated here with a quantifier *every* restricted to the objects that we own:

$$(68) \quad \begin{array}{l} \text{a. } \llbracket \text{every} \rrbracket = \lambda P \lambda Q \lambda R. P \cap Q \subseteq R \\ \text{b. } \text{Every-}C \text{ cat left the room.} \\ \quad \approx \text{Every cat } \mathbf{that\ we\ own} \text{ left the room.} \end{array}$$

Domain restrictions can be thought of as mechanisms similar to comparison classes – a salient set of objects relevant for evaluating the truth of the sentence, the former playing a role in a range of quantificational constructions, while the latter being specific to degree constructions of a certain kind. Domain restrictions / comparison classes as a point where subjectivity enters the picture were discussed in Bouchard (2012) for positive dimensional adjectives. I talk about this source of subjectivity and related issues in detail for dimensional adjectives in Appendix 1, but as I believe the same intuition applies to extreme adjectives, I briefly sketch it here too. Typically, in a positive construction with dimensional adjectives like *John is tall*, John’s height is evaluated with respect to the height of men in general (Bale, 2008, 2011). The speaker’s perspective comes into play together with the background of the speaker making the statement and the context of the conversation the interlocutors are in: a salient set of individuals can be the men that the speaker has known in his/her life, the average height of men in the region of the world he/she grew up in, the men that are now in the room etc. Thus the information about the relevant ‘reference set’ is dependent on who is making the assertion.

I assume that a similar mechanism is at work in the case of extreme adjectives as well:

$$(69) \quad \llbracket \text{gigantic} \rrbracket^{c:w,t,j} = \lambda x. \mathbf{max}(\lambda d. \text{BIG}(d)(x)) > \mathbf{max}(C^j)$$

The absence of an extra argument associated with the source of variation of the contextual interval C between judges is natural under assumption that this extra argument appears only when an experience event is involved – which is not the case for the domain restriction as the source of subjectivity of extreme adjectives. Also notice that extreme adjectives – at least according to the semantics I assign to them in (69) – can directly predicate over individuals and do not need a mediating POS morpheme that would bind the degree argument. That explains the unavailability of dative arguments in Japanese that are licensed by POS (for a similar argument from Japanese data about the apparent lack of POS with evaluative adjectives see Appendix 2).

2.8 Judge-dependence in modal degree constructions

2.8.1 Modal degree constructions

In section 2.5.2 the judge-dependence of modal degree constructions was discussed a bit in passing. I noted in brief that constructions with modal standards can sometimes appear with *for*-phrases that one could take to be judge-PPs:

(70) This river is a bit (too) deep **for John**.

In this section, I discuss modal degree constructions in more detail and argue that they are indeed judge-dependent, but do not have a judge argument.

Here are the constructions I will be concerned with – the *too*-construction (Meier, 2003; von Stechow et al., 2004), the ‘attributive-with-infinitive’ construction (AIC) (Fleisher, 2011), and the ‘functional standard’ construction (Kagan and Alexejenko, 2010; Bylinina, 2012):

(71) a. This book is too long. *Too*
 b. This is a long book to read in one day. ATTR-WITH-INF
 c. This book is a bit long for me. FUNCT-STANDARD

The syntax and semantics of these constructions will be the subject of a detailed study in Chapter 3 of this dissertation, so I won’t discuss them in much detail here, providing only the information that is necessary to understand the argument.

I call these constructions modal because semantically they can be argued to involve a modal standard of comparison. This is clear in a paraphrase that all these constructions share (see Meier 2003; von Stechow et al. 2004 suggesting this paraphrase for *too*-construction):

(72) The book is longer than it **may/can** be (given a particular goal or purpose).

The type of modality involved in all the three constructions is sometimes called ‘normative’ modality (Sæbø, 2009). Basically, it is root modality with a ‘normative’ ordering source (see Kratzer, 1981). A normative ordering source can just be preferences of the judge in the actual world, and the ‘purpose’ or a ‘goal’ can be taken to restrict the modal base (Sæbø, 2009), though there might be other ways to implement the intuition that something is better or worse from someone’s point of view with respect to a particular purpose. Fleisher (2011) uses the term ‘inappropriateness’ to describe the meaning of the AIC, which means that a certain degree compatible with what someone finds good for some purpose is exceeded.⁸ One example of a modal verb which is clearly lexically ‘normative’ is English *ought*.

It is beyond the scope of this chapter to provide a compositional analysis of how this normative modality is built in these modal constructions. All we need to acknowledge at this point is that this modal element is indeed part of the semantics of these

⁸It is not clear if strictly deontic readings – which are available, for example, for sentences like (71-a) – should be treated as a subclass of normative modal readings. I leave this issue aside.

constructions. Let's now turn to the facts concerning their subjectivity.

2.8.2 Normative modality is subjective

As one can see from this brief introduction above, the common core of modal degree constructions is the modal element that is then used to define a maximal degree compatible with the purpose. Interestingly, all the three constructions are subjective according to the familiar tests (it is easy to construct a faultless disagreement dialogue for all these cases):

- (73) a. John finds this book too long (for me) to read in one day. *Too*
 b. John finds this a long book (for me) to read in one day. *AIC*
 c. John finds this book a bit long (for me) to read in one day. *FUNCT-STND*

What makes these constructions subjective? I propose that it is their modal component. 'Normative' modals – the modals I am particularly interested in – are independently known to be judge-dependent. Sæbø (2009) discusses the embeddability of normative modal verbs like *should* or *ought* under *find*. It is problematic in English, as for many speakers *find* only takes small clause complements, and modal verbs lack suitable non-finite forms. But in other languages that do not have the small clause restriction on the complement of *find* normative modals can show up in *find*-construction:

- (74) 90% trouvent que chacun devrait comprendre au moins une langue
 90% find that everyone should understand at least one language
 étrangère en plus de sa langue maternelle.
 foreign in more of his language maternal
 '90% feel that anybody should know a foreign language'

I believe that the same effect can be observed in English as well, if we contrast a simple extensional comparative under *find* and a comparative with a modal element in the standard – *should* in the standard clause provides the necessary subjectivity so that the comparative becomes felicitous under *find*:

- (75) a. #Mary finds John taller than Bill.
 b. Mary finds John taller than he should be.

Sæbø (2009) introduces the judge as an argument of a normative modal, say, *ought* (*f* for modal base, *g* for ordering source; *z* for judge) – in exactly the same way as a contextualist would do for PPTs:

- (76) $[[\text{ought}]]^{f,g} = \lambda\phi\lambda\mathbf{z}.O_v^{f,g(\mathbf{z})}(\phi)$

The question is if this move of adding a judge argument in the denotation of a modal justified linguistically. I will argue that the answer is no.

2.8.3 Modal degree constructions lack a judge argument

Let's start with an observation that all the three 'modal degree constructions' can include a *to*-infinitival clause with an optional *for*-phrase:

- (77) a. This book is too long (for me) to read in one day. *Too*
 b. This is a long book (for me) to read in one day. ATTR-WITH-INF
 c. This book is a bit long (for me) to read in one day. FUNCT-STANDARD

Alternatively, they can have just a *for*-phrase without an (overt) infinitival clause. I will show below that this *for*-phrase is not a judge PP:⁹

- (78) a. This book is too long for me. *Too*
 b. (?)This is a long book for me. ATTR-WITH-INF
 c. This book is a bit long for me. FUNCT-STANDARD

A sentence like, say, (77-a), has two potential analyses – one where the *for*-phrase is an experiencer- or judge-like argument of *too* in the matrix clause and one where it is a complementizer plus subject of the infinitival clause:

- (79) a. This book is too long [_{PP} for me] [_{INF} to read in one day].
 b. This book is too long [_{INF} for me to read in one day].

The status of *for*-phrases in (78) is not clear as well – is it a remnant of the elided infinitival clause with a *for*-complementizer and a subject, or a *for*-phrase licensed by *too* in the matrix clause?

I will find ways to tease analyses (79-a) and (79-b) apart by looking at these constructions in a bit more detail. Exactly the same issue produced a long-standing debate in the literature discussing so-called *tough*-predicates. *Tough*-predicates (*tough*, *difficult*, *easy*, *simple* and some more) are famous for showing the following alternations, the first one in (80-a) known as a *tough*-construction (Bresnan, 1971; Faraci, 1974; Chomsky, 1977; Hartman, 2009; Kawai, 2011):

- (80) a. Linguists are tough to please. TOUGH-CONSTRUCTION
 b. It is tough to please linguists.
 c. To please linguists is tough.

When a *tough*-predicate appears with both a *for*-phrase and an infinitival clause, the same issue arises:

'Both the expletive construction and the *tough* construction may optionally take a *for*-DP sequence, but this sequence (the "for-phrase") is potentially ambiguous between a PP experiencer in the matrix clause [...] and a complementizer-subject sequence in the embedded clause' (Hartman, 2009, p. 3).

- (81) a. It is [_{AP} easy [_{PP} for Mary_i] [_{PRO_i} to talk to John]]

⁹(78-b) is only good with interpretation similar to *This is a too long book for me*.

- (82) b. John is [_{AP} easy [_{PP} for Mary_i] [_{PRO_i} to talk to --]]
 a. It is easy [_{CP} for Mary to talk to John]
 b. John is easy [_{CP} for Mary to talk to --]

Semantically the class of *tough*-predicates is quite diverse and its relation to subjectivity is not quite clear – while it contains some classic PPTs like *fun*, some of its members seem to be less subjective than others – predicates like *dangerous*, involving an estimate of objective probability of something bad happening, might be argued not to trigger subjective disagreement:

- (83) A: Roller-coasters are dangerous.
 B: No, they are not!

I find that the disagreement in (83) can be resolved with the help of statistics of accidents on roller-coasters, and one of the interlocutors can be proven wrong, thus it's not the case of faultless disagreement and 'truth as a matter of opinion'. I do not discuss the subjectivity of *tough*-predicates as a separate group due to its semantic diversity. Rather, they form a class primarily with respect to their syntactic behaviour – and the clearly subjective subset of the *tough*-class is basically the PPT class (*tasty* being the only exception – **It is tasty to eat this cake*). As I will show immediately below, *tough*-predicates do project an experiencer argument.

One of the famous facts about *tough*-predicates is that they can host two *for*-phrases simultaneously in the expletive subject construction (Faraci, 1974; Chomsky, 1977):

- (84) a. It is easy for the rich for the poor to do the work.
 b. It would be good – for the family – for John to play with Sally.

This immediately suggests that an experiencer argument is indeed there. However, in a *tough*-construction (80-a) only one of the two *for*-phrases is possible:

- (85) *Sally would be good – for the family – for John to play with ...

So *tough*-constructions can only host one *for*-phrase, but which one is it – an experiencer or the subject of the infinitival clause? Further tests try to tell between the two. As an experiencer needs to be animate, this can be used as a test (Faraci, 1974):

- (86) a. It would be good for the chalk to stick to the blackboard.
 b. *The blackboard would be good for the chalk to stick to ...

(86) suggests that the *for*-phrase in the *tough*-construction needs to be interpreted as an experiencer – the ungrammaticality results from chalk not fitting the animacy requirement.

A further way to check if the *for*-phrase belongs to the matrix clause or to the infinitival clause is NPI licensing. (Faraci, 1974) observes that certain *tough*-predicates license NPIs in their infinitival complements:

- (87) It would be dangerous to force *anyone* to come.

The *for*-phrase in an expletive construction can include an NPI, but not in the *tough*-construction:

- (88) a. It would be dangerous for anyone to force Bill to come.
 b. *Bill is dangerous for anyone to talk to ...

Thus, based on these tests, one can conclude that *tough*-predicates always project an experiencer argument – but in an expletive construction both the experiencer and the infinitival subject can be expressed, while in the *tough*-construction the infinitival subject is blocked for some reason (for a possible explanation and an alternative view see Hartman 2009; Kawai 2011).

Let's apply the same tests to modal degree constructions with infinitives and see if they have an experiencer *for*-phrase. First, the 'two *for*-phrases' test gives a negative result:

- (89) a. *This dress is a bit (too) expensive [_{PP} for me] [_{INF} for Mary to get as a birthday present].
 b. *This is an expensive dress [_{PP} for me] [_{INF} for Mary to get as a birthday present].

The unavailability of two *for*-phrases does not immediately mean that there is no experiencer *for*-phrase involved in this construction – it just means that this construction cannot host **both** an experiencer and the *for*-subject of the infinitival clause. So I will apply the other two tests and see what their result forces one to conclude.

Too is known to license NPIs in its infinitival complement (Faraci, 1974):

- (90) He's too stupid [to carry **any** money].

The *for*-phrase in the *too*-construction can include an NPI, which suggests that it is part of the infinitival clause:

- (91) The statue is too small [for **anyone** to notice].

But note that the sentence-initial 'judge'-phrase cannot include an NPI, which means that NPI-licensing in the *too*-construction is really limited to the infinitival clause:

- (92) *For anyone, this statue is too small to notice.

In fact, NPIs are licensed in the infinitival clause not only in *too*-construction, but in the other two modal constructions as well – in functional standard construction and in AIC (a bit shortened examples from the web):

- (93) a. This book is a bit long [for **anyone** to seriously read and maintain concentration].
 b. Customer service, paperwork, law and regulation, marketing, HR – it's a long list [for **anyone** to get their head around].

This test shows that in all modal degree constructions the *for*-phrase belongs to the infinitival clause and is not a matrix-level experiencer- or judge- phrase introduced by

the judge-dependent modal at a level higher than the infinitival clause.

However, the fact that the *for*-phrase is syntactically inside the infinitival clause does not exclude the possibility that it is still a judge- or an experiencer-phrase. One could imagine an analysis of modal degree constructions such that the silent normative modal resides inside the infinitival clause. In this case, the judge- or experiencer argument that it could possibly introduce would also be located inside the infinitival clause rather than in the matrix clause. In other words, the low structural position of the *for*-phrase doesn't exclude its possible experiencer- or judge-interpretation. Here is where the animacy test can help decide: if the experiencer or a judge has to be animate, the inanimate *for*-phrase would produce a bad sentence. This is not what we find though:

- (94) a. This hotel is a bit (too) expensive [_{INF} for this conference to take place in].
 b. This is a slightly expensive hotel [_{INF} for this conference to take place in].

Note again that the sentence-initial *for*-phrase, which gets unambiguously interpreted as an opinion-holder, cannot be inanimate:

- (95) ??For this conference, this hotel is too expensive to take place in.

As one can see, the result of applying these tests to the modal degree constructions is the opposite of what we get in *tough*-constructions. While the latter seem to host an experiencer *for*-phrase, the former can only have a *for*-phrase that is the subject of the infinitival clause.

2.8.4 Modal degree constructions without an infinitive

Turning to *for*-phrases in modal degree constructions that are not accompanied by the infinitival clause, I also conclude that they are not experiencer/judge-phrases. First of all, they do not have to be animate, which is incompatible with judge/experiencer semantics:

- (96) a. This table is a bit (too) wide for our truck.
 b. (?)This is a slightly wide table for our truck.

Also, these *for*-phrases contrast with experiencer/judge-PPs introduced by PPTs in their interaction with the subject of *find* (something I explore in more detail in the next section):

- (97) *John finds this cake tasty to/for Mary.
 (98) a. John finds this dress a bit (too) expensive for Mary.
 b. John finds this an expensive dress for Mary.

I propose to treat these *for*-phrases as subjects of omitted or elided *for*-infinitival clauses. Alternatively, a stand-alone *for*-phrase in these constructions can itself denote

a situation (in this case, one does not need to postulate an elided infinitival clause). I assume that both possibilities exist – the *for*-phrase can be an infinitival remnant, or it can include a situation-denoting DP and thus would not require a (silent) infinitival clause for the relevant ‘purpose’ interpretation.

As an additional argument against the ‘judge’ analysis of these PPs, consider the fact that these PPs always contain *for* and never *to* – unlike with PPTs, as discussed in section 2.2.2. This counts as further evidence against treating these PPs as matrix PPs selected by the adjective, as one would then expect some idiosyncratic selectional variation in the head of the PP.

I return to the semantics of these *for*-phrases in the next chapter. What is important for the current discussion though is that one more case of judge-dependency has proven not to project a judge argument – at least as one can conclude from the linguistic evidence I present here. This adds to the other cases of ‘non-contextualist’ judge-dependence that I have explored – evaluative adjectives, extreme adjectives, and positive forms of dimensional adjectives.

Note that this is the only section in the chapter that does not employ cross-linguistic evidence. I leave the cross-linguistic investigation of subjectivity of normative modals for future study. In general, the data I present in this chapter do not exhaust the items and constructions that can enrich our understanding of subjectivity and judge-dependence in natural language, and I don’t mean my data to be exhaustive. It suffices for me in the current discussion that the data I give allow me to clarify the point that was an initial motivation for this work – the role of ‘judge’ *for/to*-phrases in construction with some gradable predicates, and the factors affecting their licensing or the lack thereof.

2.9 Intermediate summary

The fundamental question I started my investigation of subjectivity in degree constructions with was the following: what is the correct way to linguistically capture judge-dependency? And, as a sub-question: is there only **one** kind of subjectivity out there, or do we need different analyses for different cases? I observed throughout this chapter that there might be many sources and reasons for subjectivity of different lexical classes and different constructions, but there is not much variation in how this subjectivity is linguistically encoded. However, one parameter that we have seen seems to correlate with the presence or absence of an extra argument – it is the reference to an experience event (and thus the presence of an experiencer argument) as part of PPT semantics, but not anywhere else. See the summary of the crosslinguistic data on different classes of subjective predicates in Table 1. In columns, I list different types of subjective predicates – PPTs, positive dimensional adjectives, evaluative adjectives, and extreme adjectives. The rows list different properties these predicates have (✓) or don’t have (×) – namely, the availability of an explicit ‘judge’ PP in English, the 1-person requirement in Japanese, the availability of bound anaphors in the Dative ‘judge’-phrases in Hungarian, and the availability of a Dative ‘judge’ DP in Russian. I omit modal degree constructions from this table as I haven’t conducted a

Table 2.1: Cross-linguistic properties of subjective predicates

	PPTs	POS-DAs	EVAL	Extreme
English ‘judge’ PPs	✓	×	×	×
Japanese 1P restriction	✓	?	×	×
Hungarian anaphors in Dative DPs	✓	×	×	×
Russian Dative ‘judges’	✓	×	×	×

cross-linguistic study of these constructions; but to the best of my knowledge, they fit the picture I am developing here.

Do these data mean that we need ‘two types of subjectivity’, or can we do with only one? The next section works towards an analysis of PPTs that would answer this question.

2.10 Taking stock: Experiencer, judge, and how they are related

2.10.1 The ‘judge=experiencer’ requirement

The claim I make in this chapter is that the presence or absence of an experiencer argument is orthogonal to judge-dependence, and that the experiencer argument of PPTs is not the way PPTs linguistically encode their judge-dependence. It can be further clarified with the help of the following parallel. Take a random transitive gradable adjective – say, *proud*. *Proud* has two individual arguments: the first one, introduced by preposition *of* (*proud of X*); and the subject (*Y is proud of X*). *Proud* is also gradable – it participates in comparative and other degree constructions:

- (99) a. John is more proud of his students than he should be.
b. John is too proud of his students.

The order of individuals denoted by the subject of *proud* on the *proud of X* scale depends on the first argument *X*. Say, *proud of John* and *proud of Mary* could give two totally different orderings of people’s level of ‘pride of John’ and ‘pride of Mary’, respectively. Let’s assume there are three individuals that are potential subjects of the predicate *proud of X* - *a*, *b*, and *c*. Then the measure function that is part of the semantics of *proud of John* could give the following ordering: $\langle a, c, b \rangle$, and *proud of Mary* would give the ordering $\langle b, c, a \rangle$.

Basically, this is the same as saying that *proud* is a PREDICATE OF SCALAR VARIATION dependent on its first argument – this is exactly what the literature says about PPTs like *tasty* and *fun* and their ‘judge’-PP (Lasersohn, 2009; Anand, 2009). However, this does not automatically entail that this argument is a **judge** argument – in fact, to my knowledge, a suggestion like that has never been made for the first argument of

proud.

A similar observation is made in (Anand, 2009). He observes the ‘troubling issue’ that the definition of scalar variation he uses (following Lasersohn 2009) overgenerates, predicting that any transitive scalar predicate should trigger subjectivity effects, which is not what we find with transitive adjectives in general.¹⁰

What ruins – or maybe complicates – the parallel between *proud* and *tasty* is a very intuitive difference between the roles of their internal argument. Unlike *proud*, *tasty* seems to express an opinion, or a judgement. And in fact, in a sentence like *This cake is tasty to John* the position of the cake on the TASTE scale is decided according to John’s perspective – i.e. John’s **judgement** of the cake’s taste is relevant for the truth of the whole statement. In this sense, the experiencer has a certain connection to the judge (however it is implemented) which the first argument of *proud* lacks.

A further illustration of the special relation between the judge and the experiencer argument of PPTs comes from the interaction of PPT experiencers and elements that – at least according to the existing analyses – shift the judge index as part of their lexical semantics. For example, given that *find* shifts a judge index to the individual denoted by its subject (Saebø, 2009; Bouchard, 2012), it comes as a surprise that the subject of *find* restricts the experiencer of, say, *tasty*, if the judge index and the experiencer argument are totally independent:

- (100) a. $[[\text{find}]^{c:w,t,j}] = \lambda\phi\lambda x. \phi^{c:w,t,x}$ (Saebø, 2009)
 b. *John finds this cake tasty to Mary.

In a similar way, assuming a judge-shift analysis for (Japanese) evidentials (McCready, 2007), the view that the judge index and the experiencer argument of PPTs are not related in any way is not compatible with the fact that the presence of non-1st-person PPT experiencer requires an evidential – i.e., requires the judge index to be shifted:

- (101) a. $[[\text{EVID}](\phi^{c:w,t,j})] = \phi^{c:w,t,j}$ (McCready, 2007)
 b. John-ni-wa kono keeki-wa oishii *(noda)
 John-DAT-TOP this cake-TOP tasty EVID
 ‘This cake is tasty to me / to John’

These facts strongly suggest that the analysis of PPTs setting their experiential argument and their judge-dependence apart has to be supplemented with a mechanism regulating how the experiencer argument of PPTs and the judge index are related. The first take on this kind of mechanism would be something like the following:

- (102) JUDGE=EXPERIENCER REQUIREMENT, first take:
 A direct statement about someone’s internal state can be made only if the

¹⁰Anand assumes that subjectivity arises iff the predicate possesses the property of scalar variation – which is not exactly true, as I have argued above. Some examples of subjective predicates that are not predicates of scalar variation include POS-DAs like *tall* and extreme adjectives like *gigantic*. Still the point Anand makes is valid – how does one tell when the individual that has an effect on truth value of a statement is a judge, and when it is not?

judge parameter is set to the same value as the experencer of this internal state.

However, in the form stated in (102), the requirement is too open-ended. It is not clear if it should be treated as a linguistic universal rooted in facts about human cognition, or it is a meaning postulate relevant for a certain class of predicates. I will formulate it as a meaning postulate, with a potential deeper explanation from human cognition.

Let's make things more formal and precise. To start, I need to have a semantics for PPTs that would explicitly refer to an experience event. Only one of the existing analyses for PPTs has such semantics: Anand (2009) proposes a semantics for PPTs that explicitly refers to a 'perceptual' situation.¹¹ For Anand, the semantics of *tasty for x* is built from two conjuncts:

$$(103) \quad \llbracket \text{tasty for } x \rrbracket^c = \lambda z. \psi(z, x, \text{STANDARD}(c)) \wedge \phi(\psi)$$

The first conjunct is responsible for the 'direct experience', and the second one specifies 'grounds for belief; the exact status of these conjuncts and the motivation behind them won't concern me here. I ignore the second conjunct, concentrating on what it means to have a direct experience of *tasty*:

$$(104) \quad \psi(z, x, d) \leftrightarrow \exists s [\text{taste}'(z, x, s) \wedge \text{TASTE}(x, s) \geq d]$$

(104) states that the experencer x had a perceptual experience of z and that this gave rise to a percept on the TASTY scale greater than degree d . Note that the measure function TASTY takes both an individual and a situation as its input. I modify this entry a little bit, using a neo-Davidsonian semantics as it is very transparent and easy to read (see Kratzer 1996; Landman 2000). The desired result would be something like the following:

$$(105) \quad \llbracket \text{tasty} \rrbracket^{c;w,t,j} = \text{i) } \lambda z \lambda x. \exists s [\text{taste}(s) \ \& \ \text{Experencer}(s, z) \ \& \\ \text{Stimulus}(s, x) \ \& \ \text{TASTE}(s) > d_{st} \text{ for } j \text{ at } t \text{ in } w]; \\ \text{ii) JUDGE=EXPERENCER: } j = z$$

(105) says that the semantics of *tasty* amounts to the following: there is a situation such that it is a tasting situation, z is an experencer in this situation, x is a stimulus, and the degree of the stimulus on the TASTE scale exceeds a contextual standard, according to the judge j (at time t and in world w). The second clause states that j and z – the judge and the experencer – refer to the same individual.

Thus, a simple sentence *This cake is tasty* would require that the speaker has tried the cake because the judge parameter is set to the speaker by default, and the judge=experencer requirement would force the covert experencer to take the same value – I assume that this position is occupied by a silent pronoun (Sp in the index of evaluation indicates that the judge is set to the speaker):

$$(106) \quad \llbracket \text{This cake is tasty} \rrbracket^{c;w,t,Sp} =$$

¹¹As I do not share the semantic division of labour between the *for*-phrase and the PPT itself that Anand proposes, I discuss the semantics he gives for the PPT + judge-PP complex as a whole.

- i) $\exists s$ [**taste**(s) & Experiencer(s ,**pro**) & Stimulus(s ,**this cake**) & TASTE(s) > d_{st} for Sp at t in w];
- ii) JUDGE=EXPERIENCER: **pro** = Speaker

The semantics in (106) explicitly states that the experiencer of tasting and the judge of the taste have to be one and the same individual – in the default case where no judge-shifts happens, it would be the speaker.

In the case the judge is shifted – for example, in the complement of *find*, the derivation would proceed as follows:

- (107) \llbracket John finds this cake tasty $\rrbracket^{c:w,t,Sp} = \llbracket$ This cake is tasty $\rrbracket^{c:w,t,John} =$
- i) $\exists s$ [**taste**(s) & Experiencer(s ,**pro**) & Stimulus(s ,**this cake**) & TASTE(s) > d_{st} for John at t in w];
 - ii) JUDGE=EXPERIENCER: **pro** = John

(107) allows us to make it more precise why the sentences like (108) are deviant – the deviance is located in the second clause of the semantics of (108):

- (108) \llbracket John finds this cake tasty to Mary $\rrbracket^{c:w,t,Sp} =$
 \llbracket This cake is tasty to Mary $\rrbracket^{c:w,t,John}$
- i) $\exists s$ [**taste**(s) & Experiencer(s ,**Mary**) & Stimulus(s ,**this cake**) & TASTE(s) > d_{st} for John at t in w];
 - ii) !!! JUDGE=EXPERIENCER: **Mary** = John

The impact of the sentence-initial ‘context-setting’ phrases introducing an opinion-holder (such as English *for*-phrases with COMMA intonation or Japanese *ni-totte-wa* DAT-TOTTE-TOP phrase) would be the same as of *find*:

- (109) \llbracket For John, this cake is tasty $\rrbracket^{c:w,t,Sp} = \llbracket$ This cake is tasty $\rrbracket^{c:w,t,John} =$
- i) $\exists s$ [**taste**(s) & Experiencer(s ,**pro**) & Stimulus(s ,**this cake**) & TASTE(s) > d_{st} for John at t in w];
 - ii) JUDGE=EXPERIENCER: **pro** = John

A similar semantics can be shown to work for Japanese sentences with evidential markers, which are judge-shifters, according to the analysis by McCready (2007) – and with overt *ni-wa* DAT-TOP experiencers:

- (110) \llbracket EVID This cake is tasty to John $\rrbracket^{c:w,t,Sp} =$
 \llbracket This cake is tasty to John $\rrbracket^{c:w,t,John}$
- i) $\exists s$ [**taste**(s) & Experiencer(s ,**John**) & Stimulus(s ,**this cake**) & TASTE(s) > d_{st} for John at t in w];
 - ii) JUDGE=EXPERIENCER: **John** = John

Let’s now turn to cases that seem to be problematic for the picture I have outlined so far. The first problematic case would be English sentences with overt non-first-person experiencer and without any overt judge-shifter such as a ‘perspective’-phrase or *find*. What is expected in this case would be a clash between a (default) judge set to the

speaker and the non-first-person experiencer:

- (111) \llbracket This cake is tasty to John $\rrbracket^{c:w,t,Sp} =$
 i) $\exists s$ [**taste**(s) & Experiencer(s ,**John**) & Stimulus(s ,**this cake**) &
 TASTE(s) > d_{st} for Sp at t in w];
 ii) !!! JUDGE=EXPERIENCER: John = Speaker

There are several ways one could analyse such examples. First, I want to point out that for many English speakers (and the speakers of other languages I have talked to) examples like (111) are somewhat marked. They are definitely not ungrammatical, and they make perfect sense with respect to the meaning that they convey, but there is something odd about them. This oddness, I believe, has to do precisely with the mismatch that my semantics makes explicit – these sentences are an attempt to make an external assertion about something one cannot make a direct external assertion about. But, as the overall acceptability of (111) shows, language has mechanisms to allow us to make such assertions after all. What are these mechanisms? In Japanese this mechanism is the system of evidential marking, as we have seen above. English does not have grammatical evidentiality, so there is something else going on in English that allows for (111). One option is that the default setting of the judge parameter to the speaker is weaker in English than the rule that the judge is the experiencer. Then, in a sentence like (111), the judge index would be set to John rather than to the speaker, because John is the experiencer in this sentence. This would make English and Japanese quite different in how the value of the judge index is set and shifted – apparently, Japanese cannot shift the judge in a similar sentence without overt evidential or modal morphology (the restriction known as 1P-restriction).

Alternatively, one could assume that English sentence in (111) contains a silent evidential or a silent modal that can be inserted as a last resort to resolve the conflict between the judge and experiencer taking different values. The role of this silent element would be to mediate between the non-externalisable situation and the external individual making a statement about it, specifying that it is an inference on the basis of external evidence. Quite like Japanese evidential markers, this silent element shifts the contextual judge, so that the local judge would be the overtly specified experiencer:

- (112) \llbracket EPIST/EVID This cake is tasty to John $\rrbracket^{c:w,t,Sp} =$
 \llbracket This cake is tasty to John $\rrbracket^{c:w,t,John}$
 i) $\exists s$ [**taste**(s) & Experiencer(s ,**John**) & Stimulus(s ,**this cake**) &
 TASTE(s) > d_{st} for John at t in w];
 ii) JUDGE=EXPERIENCER: John = John

The insertion of silent epistemic modals as a ‘last resort’ to satisfy the requirements associated with some elements in the sentence is attested outside of PPT constructions. In particular, Nouwen (2010) argues for precisely the same mechanism in sentences with modified numerals such as *at least 10* that require a range of values as its input. When this range of values is not provided in a certain configuration, a silent epistemic modal is inserted, and the values for the range gets picked from different epistemically accessible worlds.

I cannot decide here between the two options outlined above for the way the correct interpretation of sentences like *This cake is tasty to John* is derived.

The question immediately arises why this silent modal, if it is real, is not available to save the derivation in (108), where there is a conflict between the judge in the subject of *find* and the experiencer in the embedded clause. I don't have a good answer to this question rather than blaming this ban on the lexical selectional properties of *find* itself. As a related matter, consider one more problematic property of sentences with *find* – namely, the ban on the experiencer phrase in the embedded clause even if it coincides with the subject of *find*:

(113) *John finds this cake tasty to John.

Given the formulation of the 'judge=experiencer' requirement I have used so far, there's nothing that would preclude such a sentence from being acceptable:

(114) $[[\text{John finds this cake tasty to John}]^{c:w,t,Sp} =$
 $[[\text{This cake is tasty to John}]^{c:w,t,John}$
 i) $\exists s$ [**taste**(*s*) & Experiencer(*s*,**John**) & Stimulus(*s*,**this cake**) &
 TASTE(*s*) > d_{st} for John at *t* in *w*];
 ii) JUDGE=EXPERIENCER: John = John

However, this sentence is clearly deviant. One could argue that this is due to redundancy, as the sentence in (114) specifies that John is the judge and the experiencer twice – once in the matrix sentence and once in the embedded clause. This could be thought of as an instance of a general ban on redundant sentences, or as a lexical property of the verb *find*, which in general is known to bear all sorts of contingency / non-triviality presuppositions (see Bouchard 2012 for a detailed discussion – and also Saebø 2009; Moulton 2009 for the state-of-the-art discussion).

The last problematic case to mention is the ill-formedness of sentences where the 'perspective'-phrase and the overt experiencer phrase are present in the sentence:

(115) a. *For John, the ride was fun for John.
 b. *For John, the ride was fun for Mary.

Again, (115-a) is, again, redundant, while (115-b) is contradictory – but I do not have an explanation why the silent existential modal is not available to save (115-b). I leave this issue for future study of the availability of such rescuing mechanisms.

To sum up, I believe that the 'judge=experiencer' requirement that I propose gives good results in covering the data that has constituted the core of the debates around the semantics of PPTs and judge-phrases. The remaining question is the scope of this meaning postulate – i.e. which experience predicates this 'meaning postulate' applies to.

2.10.2 The scope of the 'judge=experiencer' requirement

An important factor clarifying what kind of mechanism has to be involved is the scope of this interaction or relation. By scope here I mean the class of experiencers and expe-

riencer predicates that show the same kind of interaction with the judge. In particular, is it only experiencer arguments of PPTs that are related to the judge in the specified way, or is it experiencers in general?

The facts fall somewhat in between these two options. On the one hand, the phenomenon in question is clearly not restricted to PPTs – but on the other hand, it does not systematically hold for any argument that would be classified as an experiencer.

Experiencers of adjectives like *lonely* or *cold* are clearly distinct from PPT ‘judge-phrases’, but in Japanese they interact with the judge parameter quite like PPT ‘judge’-PPs: they obey the 1st-person restriction and cannot be used without an evidential with the 2nd and 3d person:

- (116) a. *watasi-wa / *anata-wa / *kare-wa sabisii desu*
 I-TOP / you-TOP / he-TOP lonely COP
 ‘I’m/You’re/He’s lonely’
 b. *watasi-wa / *anata-wa / *kare-wa samui desu*
 I-TOP / you-TOP / he-TOP cold COP
 ‘I’m/You’re/He’s cold’

On the other hand, a number of other experiencer predicates do not show the same behaviour – say, *okotteiru* ‘angry’ or *haradashii* ‘irritating’ (both with a *wa* TOP experiencer) do not require an evidential in Japanese:

- (117) a. *Mary-wa John-ga haradashii*
 Mary-TOP John-NOM irritating
 ‘John is irritating to Mary’
 b. *John-wa Mary-ni okotteiru*
 John-TOP Mary-DAT angry
 ‘John is angry/mad at Mary’

It is not clear what is responsible for the difference between predicates in (116) and (117). The corresponding English predicates that are (rough) translations of Japanese predicates from (116) and (117) – *lonely*, *cold*, *irritating*, *angry* – do not really help clarify this point. *Irritating* in English patterns with PPTs with all known respects, such as optionality of the experiencer PP and embeddability under *find*:

- (118) a. John is irritating (to Mary).
 b. I find John irritating.

The other three predicates – *lonely*, *cold*, *angry* – show different behaviour. They are out in the small-clause complement of *find*:¹²

¹²I discuss only small clause complements of *find*. For many speakers, a full CP with *that* is somewhat degraded, so I exclude it from consideration:

- (i) (??)I find that John is smart.

See (Stephenson, 2007a,b) for a judgement that *find* only embeds small clauses and (Bouchard, 2012) for a judgement that *find* takes that-CPs without any problem.

- (119) a. ??I find John lonely.
 b. ??I find John angry at Mary.
 c. ??I find John cold.

However, there is a methodological point here that precludes me from drawing conclusions from (119). As an overt experiencer is obligatory with these predicates, the sentences in (119) don't constitute a minimal pair with sentences like *I find this cake tasty*, where the experiencer is not overtly present – rather, they are parallel to equally bad *I find this cake tasty to John*. Thus the degraded status of (119) can mean several things: 1) these predicates are just not subjective in English at all; 2) these predicates are quite like PPTs semantically, but the obligatoriness of the overt experiencer does not allow us to show this with the *find*-test.

A more careful look at syntactic and semantic landscape of experiencers and experiencer predicates is needed to find out what is at play in the English and the Japanese patterns discussed above – it might be the syntactic status of the experiencer (see Belletti and Rizzi 1988 and the discussion this work gave start to), or its semantic properties (see Reinhart's work on semantic classification of thematic roles in general and experiencer subtypes in particular based on binary features, and further developments – Reinhart 2002; Marelj 2004; Siloni et al. 2012; other relevant work is Pesetsky 1995 and Landau 2010), or the combination of syntax and semantics.

I leave further study on which experiencers or experiential predicates interact with the judge parameter and how this interaction is restricted for future work. What is clear so far, crucially for the point I want to make here, is that this interaction is most probably not a property of the PPT argument exclusively, and can be found for other kinds of experiencer arguments as well (with further semantic and/or syntactic constraints, probably subject to cross-linguistic variation). Thus the PPT data do not undermine the unified account of subjectivity effects found across degree constructions I have looked at. The extra argument of PPTs does not show any particular judge-related behaviour that is not observed for other classes of experiencers.

The conclusion thus is that the judge-dependent properties of PPTs should be seen as a combination of the following ingredients: judge-dependence *per se*, experiential semantics that is responsible for the presence of the experiencer argument, and the relation between the judge and the experiencer that is not particular to PPTs.

2.11 Conclusion and further issues

I looked at different classes of subjective lexical items, limiting myself to the domain of degree constructions. I took predicates of personal taste like *tasty* or *fun* as a starting point, as they have received the most attention in the literature and are usually taken to be representative of the whole class of subjective predicates, but a closer look at more items like positive dimensional adjectives (*tall*), evaluative adjectives (*smart*), extreme adjectives (*gigantic*), and modal degree morphemes like *too* shows that there

There is also an option for an infinitive (Acc-cum-Inf) complement of find, but this combination has certain semantic effects that I try to avoid (see Moulton 2009).

is much less evidence for a judge argument for subjective terms in general than has been argued for based on predicates of personal taste data. At the same time, I argue that postulating a judge argument for *tasty* or *fun* and capturing judge-dependence of the other classes with a judge index of evaluation – ‘two types of subjectivity’ view – is not a good solution as well. Taking an intuition that the extra argument of PPTs is an experiencer seriously, I observe that, indeed, the presence of an extra argument correlates with reference to an experience event being part of the predicate semantics, and, on top of that, I show that the PPT experiencer argument does not exhibit any special judge-dependent behaviour that is not observed for other experiencers in different constructions.

The task formulated in the beginning of the chapter was to clarify the role judge-dependence plays in the semantics of certain gradable predicates and degree constructions, how this judge-dependence is encoded linguistically, and what the semantic contribution of ‘judge’-PPs is. Now I can give my solution to the puzzle formulated as a starting-point of this discussion: what accounts for the observable diversity of subjectivity ‘types’ that we found only looking at three adjectives – *tasty*, *smart*, and *tall*:

1. *Tasty*-class: subjective both in positive and comparative form, take judge PPs;
2. *Smart*-class: subjective both in positive and comparative form, no judge PPs;
3. *Tall*-class: subjective in positive but not in comparative form, no judge PPs.

I argue that the overt judge PPs are experiencers licensed when the predicate refers to an experience event as part of its semantics, the ‘judge’ flavour being due to the interaction between experiencers in general and the judge index of evaluation. The lack or presence of subjectivity effects in degree constructions other than the positive construction depends on which element exactly is subjective – in the case of *POS-tall*, the source of subjectivity is the positive morpheme *POS*, while *tall* in the absence of *POS* in a comparative construction does not show subjectivity because *tall* itself lexicalizes a perfectly objective measure function that cannot be the source of subjectivity. On the other hand, *smart* is lexically subjective (it is a predicate of scalar variation, or, in Kennedy’s terms, it lexicalizes a subjective measure function), hence subjectivity effects in non-positive constructions.

This said, there are still a number of loose ends and problems remaining. The first issue that needs further work on concerns the particular formulation of the dependency between the judge parameter and the experiencer argument that I have observed in the previous section:

- (120) JUDGE=EXPERIENCER REQUIREMENT, first take:
A direct statement about someone’s internal state can be made only if the judge parameter is set to the same value as the experiencer of this internal state.

As noted in the previous section, this formulation is probably too strong, and I leave its refinements for future work.

Another problematic issue that I haven't touched in this chapter concerns the differences within the class of PPTs with respect to their argument structure. For example, while *tasty* takes an DP subject denoting a kind of food, *fun* can take either an event-denoting DP subject (*The ride* was fun), or an infinitive clause:

- (121) a. The cake is tasty.
 b. *To eat the cake was tasty.
- (122) a. The ride was fun.
 b. To ski is fun.

While both *fun* and *tasty* seem to semantically refer to an experience event, they do it in different ways. Developing a semantics that would account for these differences is a task for future work. As a first schematic attempt, I propose that the first argument of *fun* denotes a predicate over events rather than the stimulus. This would amount to the following different denotations for *tasty* and *fun*:

- (123) $\llbracket \text{This cake is tasty} \rrbracket^{c;w,t,Sp} =$
 i) $\exists s [\text{taste}(s) \ \& \ \text{Experiencer}(s, \mathbf{pro}) \ \& \ \text{Stimulus}(s, \mathbf{this \ cake}) \ \& \ \text{TASTE}(s) > d_{st} \ \text{for } Sp \ \text{at } t \ \text{in } w];$
 ii) JUDGE=EXPERIENCER: **pro** = Speaker
- (124) $\llbracket \text{The ride was fun} \rrbracket^{c;w,t,Sp} =$
 i) $\exists s [\text{ride}(s) \ \& \ \text{Experiencer}(s, \mathbf{pro}) \ \& \ \text{FUN}(s) > d_{st} \ \text{for } Sp \ \text{at } t \ \text{in } w];$
 ii) JUDGE=EXPERIENCER: **pro** = Speaker

I believe that this take on the semantics of predicates like *fun* is subject for substantial improvement, but I leave it here as a starting point of future research.

Finally, and maybe most importantly, it has to be clarified how the 'judge=experiencer' meaning postulate that I propose relates to what is known about other indexical information such as the speaker, or time, or location, as well as to other perspective phenomena beyond subjectivity and predicates of personal taste. I briefly discuss these issues in the next section.

2.12 Zooming out: Judge index and indexical shifting

In this chapter, I have treated the judge as part of index of evaluation. Moreover, I have suggested (following other work in some cases) that under certain conditions this index can be shifted to take a different value. It would be interesting to look at other shifting phenomena and locate judge-shifting in a broader context of other shifts.

Let's first consider the phenomenon of 'indexical shifting'. Indexical shifting concerns various indices that are part of conversational context – speaker, addressee, time, location, etc. Recall from the discussion of relativist theories of subjectivity (Lasnik, 2005, 2009) that context is distinct from index of evaluation: contextual information is used to resolve indexicality in the *character* of the sentence, which results in *content* of the sentence. This content is then evaluated for truth or falsity over indices

of evaluation (of which judge is a member).

However, the context is also known to shift (Bühler, 1934; von Stechow, 1981, a.o.). The existence of such shifts was considered to be precluded in the grammar of natural language for quite a long time – probably, the first person to explicitly formulate the impossibility of context shifts was (Kaplan, 1989):

- (125) **Fixity Thesis (a corollary of Direct Reference):** (after Schlenker 2003)
The semantic value of an indexical is fixed solely by the context of the actual speech act, and cannot be affected by any logical operators.

Kaplan calls these operators ‘monsters’ and claims that they do not and couldn’t exist. However, in much recent work these ‘monsters’ – operators that quantify over contexts – have been motivated for a number of languages, starting with the influential work of Schlenker (1999, 2003) (mainly on Amharic). Subsequent work added more languages and types of indexical shifting to the discussion (Anand and Nevins, 2004; Anand, 2006; Sudo, 2012; Shklovsky and Sudo, 2013). I illustrate the phenomenon with the examples from Zazaki language studied in (Anand and Nevins, 2004; Anand, 2006). Consider the following sentence:

- (126) $h\acute{e}sen-i_j$ (mi_k-ra) va [$_{CP}$ $k\acute{e}$ $\acute{e}z_{j/k}$ $dewletia$]
Hesen-OBI I-OBL.TO said that I rich.be.PRS
‘Hesen said (to me) that {I am, Hesen is} rich’

The 1st person pronoun in (126) can be interpreted either as referring to the speaker of this sentence, or as referring to the subject of the verb of saying. The existence of the same kind of ‘relative’ readings could be shown for locative and temporal indexicals as well:

- (127) $waxto$ $k\acute{e}$ ma $diyarbekir-de$ $bime$, $h\acute{e}sen$ $mi-ra$ va $k\acute{e}$ o **ita**
when that we Diyarbekir-at were, Hesen.OBL me-at said that he **here**
 ame $dina$.
came world
‘When we were in Diyarbekir, Hesen told me he was born here, in Diyarbekir’
- (128) $hefte$ $nayeraraver$, $h\acute{e}sen$ $mi-ra$ va $k\acute{e}$ o **vizeri** $rojda$ $paci$
week ago, Hesen.OBL me-at said that he **yesterday** Rojda kiss
 $kerd$.
did
‘A week ago, Hesen told me that he kissed Rojda 8 days ago, #yesterday’.

Zazaki is a language that, in principle, allows every contextual coordinate (=index) to be shifted. This means (at least, in Anand’s system) that Zazaki has a contextual operator that is associated with a universal quantifier overwriting every coordinate of the utterance context:

- (129) $[[OP_{\forall}\alpha]]^{c,i} = [[\alpha]]^{j,i}$

where $j = \langle Auth(i), Addr(i), Time(i), World(i) \rangle$

The difference between shifted and unshifted readings of indexicals in Zazaki (and between languages that shift and don't shift indexicals in general) would be located in the properties of certain matrix predicates that either introduce or don't introduce a 'monster operator' – and thus if a context gets overwritten or not. The semantics of indexical elements is thus the same in shifted and non-shifted contexts and both in languages that allow shifting and not allow shifting as well. For instance, the semantics of *I* would be $\lambda c. Author(c)$.

This picture is very similar to what I have said above about the judge index. There are expressions – positive morpheme POS, PPTs, normative modals, etc. – that refer to the judge index of evaluation as part of their lexical semantics, quite like *I* refers to the speaker and *now* refers to the time of utterance, etc. At the same time, there are items that force the (part of the) context to get overwritten, and thus the interpretation of the item appealing to the index would change. For subjective predicates, this would amount to the interpretation under a shifted perspective (for example, when the judge is shifted to the subject of *find*), for *now* it would be reference to the time picked by the matrix predicate, etc.

What obscures the parallel between these phenomena is the difference in the set of shifting contexts that has been documented for indexical shifting phenomena and the contexts that seem to shift the judge. Indexical shifting only occurs under very limited class of matrix verbs, mostly verbs of saying (for an overview of such contexts see Sundaesan 2012). The typical indexical shifting verbs shift the judge as well – as the relative interpretation of *tasty* suggests:

- (130) a. John said that he ate a tasty cake. (= tasty to John)
 b. John wants to eat a tasty cake. (= tasty to John)

However, the shifted interpretation of subjective predicates is much less restricted than the shifted interpretation of indexicals. Throughout the chapter, I have identified several environments that at least seem to shift the judge: 'subjective attitude verb' *find* (which is expected under an indexical shifting view), evidentials, epistemic modals, sentence-initial *for*-phrases, questions, and some others. I can add to this list some adjunct environments as well – *if*- and *because*-clauses:

- (131) a. If the food is tasty, the cat will eat all of it. (= tasty to the cat)
 b. The cat ate all the food because it was tasty. (= tasty to the cat)

At the same time, these judge-shifts cannot be totally pragmatic, as the bare sentence *The cat food is tasty* uttered by John does force an inference that John has tried the cat food and thus has to report John's judgement of the cat food's taste, even if this reading is very strange in the context (see the observation on the 'evidential' nature of PPTs discussed in section 2.2.2 above).

This pattern is very reminiscent of other perspective phenomena, such as *left / right* or *come / go* alternations in certain contexts (Fillmore, 1966), or long-distance binding in Japanese and Tamil, which both have been claimed to be sensitive to 'perspective'

(Sells, 1987; Sundaresan, 2012).

Sundaresan notices the differences in binding contexts for Tamil long-distance anaphor *ta(a)n* and the indexical shifting contexts (the former include, among others, adjunct clauses quite like the ones illustrated for PPTs in (131)) and argues that the two phenomena should be analysed in different ways. In particular, she argues for a structural representation of a Perspectival Center in certain parts of the structure of a sentence as a PerspP.

A fascinating task for future research would be to check the distributional properties of a variety of perspective-sensitive items in comparison with the environments where subjective predicates can or have to be interpreted with respect to a shifted perspective. None of the existing theories of subjectivity has gone that far in understanding the judge-dependency phenomenon. One difference between the known environments inducing indexical- or perspective-shifting is suggested here – this environment involves the class of statements about one’s non-externalizable experience. This restriction on the value of the judge is unique to the judge parameter (and not attested for the speaker, or the location etc.) ‘by virtue of what it means’ to be a judge in a context.

2.13 Appendix 1: Subjectivity of dimensional adjectives

As demonstrated in section 2.4, dimensional adjectives show subjectivity effects in the positive form (but not in the comparative) (Richard, 2004; Anand, 2009; Moltmann, 2010; Paenen, 2011; Kennedy, 2012):

- (132) a. **A:** Carla is rich/thin/heavy/old/young/short.
B: No she's not!
 b. John finds this river deep.
- (133) a. **A:** Apples are tastier than bananas. SUBJECTIVE DISAGREEMENT
B: No, they are not!
 b. **A:** John is taller than Bill. OBJECTIVE DISAGREEMENT
B: No, he's not!
- (134) a. I find apples tastier than bananas.
 b. *I find John taller than Bill.

As it is only the positive form of a DA (POS-DA) that is subjective, the existing analyses locate judge-dependence of POS-DAs in the positive morpheme POS. Using cross-linguistic data, I argue in section 2.4 that the positive morpheme POS is subjective, but doesn't project an extra argument corresponding to the 'judge'. Can one be more precise about the source and reasons for judge-dependence of POS?

As Richard (2004) points out, one of the ways the positive standard can vary between the speaker and the addressee (and thus, potentially, for different judges) for adjectives like *tall* or *heavy* is related to the comparison class over which the individual's height or weight is evaluated. The comparison class is often implicit and the speaker and the addressee can have different comparison classes in mind when evaluating a simple sentence like *John is tall*. Indeed, this sentence could be judged as false or true depending on who we are comparing John to: say, if John's parents are very short, we could call him tall having this fact in mind, even if he is shorter than an average man; to the contrary, John could be counted as short when one is discussing his potential career as a basketball player, even in case he is quite tall compared to an average man in general.

There are several ways to incorporate the role of comparison classes into the semantics of the positive morpheme. I assume for the current discussion that comparison classes (C) restrict the domain of the DA, so that the standard would be calculated by a function **norm** on the basis of this restricted DA (Kennedy, 2007; Bale, 2008) – I am using the type $\langle ed \rangle$ measure phrase semantics for gradable adjectives, as this is the way it was formulated in the work I refer to:

$$(135) \quad [\text{POS}] = \lambda g_{\langle ed \rangle} \lambda x_e \in C. g(x) > \mathbf{norm}(g \upharpoonright C)$$

In this formula, $g \upharpoonright C$ is a measure function g restricted to a comparison class C . While this particular solution might be problematic in several respects (see Bale 2011 for discussion), what it makes clear is that the actual value for the standard depends on

which set of individuals restricts the measure function, both when this set is explicit or clear from the context, and in case the context leaves it somewhat vague. The latter fact could indeed be a source of at least some cases of judge-dependence of POS-DAs.

Bouchard (2012) develops an analysis based exactly on this intuition. Typically, in a simple sentence like *John is tall*, John's height is evaluated with respect to height of men in general (Bale, 2008, 2011). The speaker's perspective comes into play together with the experience of the speaker making the statement: the men that the speaker has known in his/her life, the average height of men in the region of the world he/she grew up in etc. – basically, with the set of people one includes into consideration. Bouchard takes the implicit comparison class to be expressed by a covert set-denoting pronominal $C_{w,j}$, whose value would vary for different judges in a given world:

(136) John is POS- $C_{w,j}$ tall.

Bouchard draws a parallel between the implicit comparison classes restricting the domain of the DA's measure function and the familiar device of quantifier restriction pronominals such as those proposed in (von Stechow, 1994), see also (Westerståhl, 1984; Schwarz, 2009). For example, quantifier *every* can be made to take an extra set-denoting argument with its value supplied by the context. In (137), C could refer to the things that we own to make sure that the sentence only says anything about our cats, not all the cats in the universe:

(137) a. $\llbracket \text{every} \rrbracket = \lambda P \lambda Q \lambda R. P \cap Q \subseteq R$
 b. Every-C cat left the room.
 \approx Every cat **that we own** left the room.

In this way the judge-dependent piece would be separated from the semantics of POS *per se*. Moreover, POS itself is totally objective for Bouchard, who suggests, following (Fernández, 2009), that it is possible to come up with an algorithm deriving the standard from a set of objects in a way that speakers consistently agree with. Thus, in a nutshell, if the standard-calculating function is deterministic as long as the comparison class is fixed, the subjectivity must come from the comparison class.

However attractive and natural the parallel between the contextual restriction on quantifier domains and the comparison classes affecting the value of the standard in positive constructions, there are some worries that seem to undermine the idea that comparison classes are the only source of judge-dependence of POS-DAs. First of all, POS-DAs with an explicit comparison class are still subjective. They trigger the familiar subjectivity effects like subjective disagreement and embedding under *find*:

(138) a. **A:** John is tall for a 3-yo. SUBJECTIVE DISAGREEMENT
B: No, hes not.
 b. I find John very tall for a 3-year old.

Second, it is well known in the experimental literature on vagueness and the sorites paradox that even when subjects are presented with a fixed comparison class, the cut-off point is not stable. There are two set-ups that present a comparison class to the subject in different ways:

- A static set-up presents the whole comparison class to the subject simultaneously (Alxatib and Pelletier 2011, and references therein);
- A dynamic set-up, also known as ‘forced march’ following (Horgan, 1994), presents the members of the sorites sequence one by one (or pairwise) (Kalmus et al., 1979; Gregson, 2004; Egré, 2009, a.o.).

In all of these studies the cut-off point and, consequently, the standard varies significantly from subject to subject, from run to run, and – in a dynamic set-up – depending on the direction in which the members of the comparison class are presented.

An enormous amount of philosophical, psychological and linguistic literature has been devoted to this and related facts (Raffman, 1994, 1996; Soames, 1999; Stanley, 2003; Shapiro, 2006, a.m.o.), but I will concentrate on the parts that are relevant to the particular linguistic question of how the subjectivity of POS is encoded in language – which element of a POS-DA construction refers to the judge and how.

To capture the above facts, Raffman (1994) proposes that the extension of a vague predicate P is determined by two contextual factors that together make up the total context:

- **External context:** The discourse factors that fix the domain, comparison class, dimension, etc. of P .
- **Internal context:** The properties of an individual’s psychological state that determine dispositions to make judgments of P relative to some external context.

Thus, for Raffman, the comparison class is not the only factor determining the cut-off point for P . See also (Fara, 2000) as a classic reference for an ‘interest-relative’ theory of vagueness, as well as Richard (2004), who explicitly makes a point that locating subjectivity in the comparison class wouldn’t be enough. The examples Fara discusses are of the following kind: consider a sentence like *There is a lot of beer in the fridge* uttered by somebody looking at 20 bottles of beer in the fridge. This sentence would be judged as true in a usual situation when there’s no party scheduled, but false if a big party is going to be thrown tonight. It is not immediately obvious how this dependency could be reduced to the variation in the comparative class. Kennedy (2007) argues against the deterministic POS as well and implements this with **significantly exceed** component of POS semantics (C being the comparison class of type $\langle e, t \rangle$):

$$(139) \quad \llbracket \text{POS tall} \rrbracket = \lambda x_e. \text{tall}(x) !> \text{norm}(\text{tall})(C)$$

where $!>$ = significantly exceed

For POS having a semantics like (139), the fixed comparison class still leaves space for assigning 1 or 0 to one and the same individual combined with the predicate *POS-tall* depending on whether the difference between the standard and the individual’s height is counted as significant or not. The **significantly exceed** component is a natural point where judge-dependence can enter the picture: the judge can naturally be

someone who finds the difference between the degree that subject reaches on the scale in question and the standard degree **significant**.

Notice that Kennedy's non-deterministic semantics for POS is in principle compatible with a deterministic standard as argued for in (Fernández, 2009): what is at stake in Kennedy's analysis is the difference between the standard degree (however it is defined) and the degree the subject reaches on the height scale. Thus, again in principle, there are at least three ways subjectivity could potentially be found in the semantics of a positive construction:

1. In the comparison class (Richard, 2004; Bouchard, 2012);
2. In the calculation of the standard degree from the fixed comparison class (Fara, 2000; Richard, 2004);
3. In the required difference between the standard degree and the degree reached by the subject of the DA (Kennedy, 2007).

However, it's still not clear how exactly the facts discussed by Fara (2000) and Raffman (1994) that initially motivate the non-deterministic POS solution would be accounted for under any of these three options. I proceed by trying to make the comparison class subjectivity more powerful than in Bouchard's formulation and see how far it can go in accounting for the 'non-deterministic' facts.

Subjective comparison classes and their limits

The subjective comparison class option might be in fact more promising in terms of the number of facts covered than I made it look above. The cases I discussed above as problematic can be accounted for if one moves from extensional comparison classes to intensional ones. A modal comparison class differs from the extensional one in that it includes modal counterparts of the members of the comparison class. A (contextually salient) proposition p restricts the set of worlds to consider. Compare a somewhat simplified semantics of *POS-tall* with an extensional comparison class to that with an intensional one:

$$(140) \quad \begin{array}{l} \text{a. } \llbracket \text{POS tall} \rrbracket = \lambda x_e. \mathbf{tall}(x) > \mathbf{norm}(\mathbf{tall})(C) \\ \text{b. } \llbracket \text{POS}_m \text{ tall} \rrbracket = \lambda x_e. \mathbf{tall}(x) > \mathbf{norm}(\mathbf{tall})(C_m) \end{array}$$

If an extensional comparison class C is based on an extensional property P (say, *a 4-year-old kid*), then the intensional comparison class C_m would be naturally constructed as an intensional property corresponding to the extensional property P that underlies C : $\lambda w \lambda x. \mathcal{P}(x)(w)$. Then we can access the individuals, by looking at a certain proposition p :¹³

$$(141) \quad C_m = \cup \{ [\lambda w \lambda x. \mathcal{P}(x)(w)](w') \mid w' \in p \}$$

¹³In Chapter 4, where I look at comparison classes in greater detail, I will use a slightly different denotation for modal comparison classes, but for the discussion here this denotation is good enough.

The need for intensional comparison classes is independently well motivated (see Sassoon and Toledo 2011; Burnett 2012). For a quick illustration of the need for modal comparison classes consider the following sentences (for a detailed discussion of modality in comparison classes, see Chapter 4):

- (142) a. John is tall for a son of mine.
b. He is very shy for the first man on the Moon.

Imagine (142-a) uttered by someone who only has one son. What (142-a) intuitively means is not that there is a single member of the comparison class, and John's height exceeds the standard defined on the basis of his own height (say, an average or a mean or a median value). That would just mean that John basically exceeds his own height. Apparently this is not what (142-a) means. Rather, it says that John's height exceeds the **expected** height for the speaker's son. Thus probably what is needed to capture this case is an intensional property $\langle e, st \rangle$, which serves as a base for calculating the standard of height for the speaker's sons (the worlds to consider being worlds compatible with my expectations). The same intuition holds for the first man on the Moon.

How does this shift from extensional to intensional comparison classes cover the cases Fara (2000) talks about? The set of worlds to include in p can be defined by interests, or purpose, or the speaker's idea of the norm, which would influence the counterparts included in subjective comparison class, and thus, indirectly, the calculation of the positive standard. Recall Fara's example *There is a lot of beer in the fridge*. If one has the purpose of having a party in mind when evaluating if there's a lot of beer in the fridge, the worlds to include in p are those in which there is a party going on. Now, in each world in p there is a certain amount of beer bottles in the fridge. These 'groups' of beer bottles collected from all worlds in p constitute a modal comparison class, and these 'groups' in general exceed in quantity the beer we would have in the fridge in the worlds where nobody is going to drink tonight. Thus the standard for *a lot of beer* that has to do with standing out or exceeding the average in a comparison class would differ in these two cases, because the 'average' quantity would be different in these two comparison classes, and different amounts of beer would be required to stand out. This would be totally parallel to different standards in *tall for a basketball player* vs. *tall for a 4-year-old kid* case.

This would collapse Raffman's two types of context (external and internal) together again, as the current interests and – more generally – psychological state at the moment of utterance would influence the 'external' context – in particular, the comparison class used to calculate the standard.

What about the experimental results when the subject is presented with a fixed comparison class as a stimulus? In a dynamic forced march set-up the inconsistency of cut-off point placement depending on the direction of exposure of sorites sequence still might have an explanation in terms of varying comparison classes – indeed, that's what Raffman (2005) entertains as a possibility: she suggests that what shifts in the course of the forced march is something like the 'operative comparison class'. It might be harder to say the same about static set-ups, when the whole comparison class is presented at the same time on one picture, as in (Alxatib and Pelletier, 2011). But still,

even in this set-up, when Raffman's 'external context' is fixed, the shift from not-P to P varies from speaker to speaker and from run to run. One could argue that even when the subject looks at several men on the picture and is asked to judge some of them as tall or not tall, the judgement that the subject makes can be affected by something absent from the picture – some other individuals that are of the same category etc. In other words, all the previous life experience plus the current psychological state of the subject might bring up the background for the judgement that can be seen as forming a broader comparison class. For example, if the subject recognizes the stimulus picture as a police line-up, he/she can evaluate the height of men on the picture over the height of criminals he has some idea about (thus the modal comparison class would collect its criminal members from all the worlds compatible with the subjects knowledge).

All in all, I cannot exclude the option that comparison classes are not the only source of subjectivity in POS-DA constructions on purely linguistic grounds, but I believe they technically can be constructed powerful enough to cover the relevant cases.

POS-DAs do not describe an experience, but refer to internal state

As discussed in some detail in section 2.2.2, the difference between predicates like *fun* or *tasty* and predicates like *POS-tall* or *POS-wide* is that PPTs show a 'direct experience requirement' – the statement like *This cake is tasty* can be made only if the judge has had direct perceptual experience involving the subject (i.e. has tasted the cake). This means that PPTs lexically include a reference to an experience event as part of their semantics, while POS-DAs don't. As experience events involve an experiencer, an extra argument gets projected in the case of PPTs but not POS-DAs.

I will now evaluate this analysis by having a look at more data. As we have seen so far, the POS judge does not introduce an experiencer argument. But, on the other hand, as I have briefly mentioned, the lack of POS-DA experiencer argument is not a universal cross-linguistic fact. Let us look at one of the exceptions to the generalization that POS-DAs do not have experiencer arguments. I turn to Japanese again. In section 2.2.2 I illustrated the direct perception experience requirement with Japanese 1st person constraint on PPT judges. Here is the relevant example:

- (143) a. *watasi-ni-(totte)-wa /*John-ni-(totte)-wa kono keeki-wa oisii*
 I-DAT-TOTTE-TOP /John-DAT-TOTTE-TOP this cake-TOP tasty
 'This cake is tasty to me / to John'
- b. *John-ni-(totte)-wa kono keeki-wa oisii noda / ni tigainai*
 John-DAT-TOTTE-TOP this cake-TOP tasty EVID / there's.no.mistake
 'This cake must be tasty to John'

When we turn to POS-DAs, we see, first of all, that the dative 'judge'-DP is available in this construction in Japanese (like in Hungarian, and unlike, say, in Russian) as well as the second option – *ni-totte-wa* judge. But the 1st person restriction data is not straightforward. It seems that the 1st person restriction doesn't always hold. The obligatoriness of an evidential with a 3d person dative 'judge' depends on the kind of

interpretation the sentence has:

- (144) a. watasi-ni-wa kono kaban-wa omoi
 I-DAT-TOP this bag-TOP heavy
 ‘For me, this bag is heavy’
 b. John-ni-wa kono kaban-wa omoi
 John-DAT-TOP this bag-TOP heavy
 ‘For John, this bag is heavy’
OK: Considering John as a candidate for carrying the bag.
??: Looking at John suffering trying to carry the heavy bag.

(144-b) is good without an evidential in a discussion considering if John is a good candidate for carrying the bag, but if we are looking at John carrying the bag and somehow see that the bag is heavy for John, the sentence without an evidential marker is degraded. What does this mean? Let’s look at a different dimensional adjective.

The prototypical dimensional adjective *tall* is much worse with a 3d person judge without an evidential out of the blue:

- (145) watasi-ni-wa / ??John-ni-wa Doomu Tawaa-wa takai
 I-DAT-TOP / John-DAT-TOP Dom Tower-TOP tall
 ‘For me / For John, the Dom Tower is tall’

What is the relevant difference between *heavy* and *tall*? I would like to suggest that the answer to this lies in the typical comparison classes these adjectives take. *Heavy* is typically used to talk about situations in which an object is carried or lifted, while *tall* is not restricted to any clear class of situations it’s relevant for. *Heavy* with a 3d person judge without an evidential is acceptable as long as it is interpreted as ‘The bag’s weight exceeds the weight compatible with John carrying the bag’, while it’s harder to infer the same kind of relevant situation for *tall*. Thus, the POS for *heavy* in (145-b) uses a modal comparison class to calculate the standard, relating weight to a particular norm or purpose. Otherwise, the 1st person restriction is active.

Indeed, the *sugiru* ‘exceed’ construction in Japanese does not show the 1st person restriction. It is synonymous to the English ‘too’ construction and involves a modal standard of comparison: *X is too tall* means, roughly, ‘X is taller than it **can/may** be’ (Meier, 2003; von Stechow et al., 2004):

- (146) a. John-ni-wa Doomu Tawaa-wa taka-sugiru
 John-DAT-TOP Dom Tower-TOP tall-exceed
 ‘For John, the Dom Tower is too tall’
 b. John-ni-wa kono hon-wa naga-sugiru
 John-DAT-TOP this book-TOP long-exceed
 ‘For John, this book is too long’

As the above examples show, there is no 1st person restriction if the sentence has a modal interpretation, and one does not have to use an evidential to make modal statements involving POS-DAs and a 2nd or 3d person judge. But why is it the case

that the otherwise obligatory evidential marker suddenly is not needed when the standard of comparison involves reference to possible worlds? To approach this question, we need to know more about the semantics of evidential markers. Let's consider a judge-shifting analysis of evidentials (McCready, 2007). According to this analysis, what evidentials do is directly manipulate the judge index of evaluation, changing it to some other salient judge (simplified denotation from McCready 2007):

$$(147) \quad \llbracket \text{EVID} \rrbracket (\llbracket \phi \rrbracket^{c:w,t,j}) = \llbracket \phi \rrbracket^{c:w,t,j'}$$

Apparently, if the statement involves reference to an experience event, the judge is shifted so that the judge and the experiencer are one and the same individual, because there is non-externalizable grounds for making this kind of statement (I have elaborated on this in section 2.8).

When we don't see an evidential in a modal POS-DA construction like (144-b), that's because the judge is not shifted, it's still the (default) speaker – the one who makes the modal statement and is the source of the choice of which world to include in *p*.

The remaining question is whether the contextualist-like analysis is plausible for the judge-dependence of **extensional**, non-modal POS in Japanese. It seems that English and Japanese treat POS judges in different ways. While for English POS-DAs it's harder to postulate an extra argument, in Japanese POS-DA judges pattern with PPT judges in their form and in the restrictions they obey and favour a contextualist analysis – indeed, they seem to project an extra argument that patterns with experiencer in general and the argument of PPTs in particular.

However, dimensional adjectives still differ from PPTs in that they do not project an *ni-wa* argument in the comparative construction (with or without an evidential):

- (148) ??John-ni-wa kono kaban-wa ano kaban-yori omoi (noda /
 John-DAT-TOP this bag-TOP that bag-than heavy EVID /
 ni tiginai)
 there.is.no.mistake
 'This bag is heavier for John than that bag'

There are several ways to approach this point of cross-linguistic variation. At least two potential reasons might be responsible for the fact that some languages treat a POS 'judge' as an experiencer-like argument, while some of them don't.

First, languages might differ with respect to the ways they map situation participants onto theta-roles, different languages cutting the pie in different ways. For example, English and Russian treat as experiencers only those participants that possess or change a certain emotional state in the course of the event. Indeed, in this sense the POS judge is not an experiencer – no one 'experiences' the positive standard. At the same time, Japanese might categorize all [+internalized] participants as experiencers, and indeed, as we saw before, Internal Context plays a crucial role in subjectivity of POS-DAs.

One more option would be to posit semantic variation between languages in the way they realize judge-dependency of POS. Remember the two potential non-comparison-

class sources of POS subjectivity: a non-deterministic standard-calculating function and a 'significantly exceed' relation between the subject and the standard. The difference between different languages in the way the POS judge is treated could be due to which of these two potential ways is realized linguistically, assuming it could be the source of variation between languages. A 'significantly exceed' option would project an experiencer argument, while a non-deterministic standard function wouldn't, or vice versa.

I conjecture that the second option much less likely than the first one, but I cannot convincingly rule it out. A proper cross-linguistic study would be very useful to make this point more empirically and theoretically informed, but I leave this to further research for now.

2.14 Appendix 2: Subjectivity of evaluative adjectives

In section 2.5 I have shown that evaluative adjectives are subjective, but Japanese, English, Russian and Hungarian data strongly suggest that there is no extra argument associated with judge-dependence of evaluative adjectives. This raises the question why do we find a systematic crosslinguistic difference in argument licensing between PPTs on the one hand – and evaluative adjectives on the other hand?

To answer this question it is useful to look at the source of subjectivity of evaluative adjectives. Intuitively, predicates like *smart* or *lazy* do not refer to internalized experience as part of their semantics (unlike *tasty*). Rather I would like to suggest that subjectivity in evaluative adjectives is related to the multidimensionality of such predicates. There are different parameters or dimensions of being smart (maths skills, good memory etc.) or pretty (big eyes, beautiful hair etc.) and different judges assign different importance or weight to different parameters. This results in a subjective ordering along the overall scale associated with an evaluative adjective. Let's look at semantics and typology of multidimensional predicates in a bit more detail.

(Sassoon, 2012) proposes a typology of multidimensional adjectives such as *healthy* or *sick*. The interpretation of these adjectives is sensitive to multiple dimensions such as blood pressure, blood-sugar level etc. In this they contrast with DAs such as *tall*, whose interpretation is dependent on entity values along one particular scalar dimension (such as height for *tall*). Here are other examples of multidimensional adjectives (Kamp, 1975; Klein, 1980):

similar, identical, typical, normal, good, clever, talented, happy, human, healthy

There are linguistic ways multidimensionality can be manifested – the obvious ones are PPs headed by *with respect to* or *in*, which are not suitable as a way of removing true ambiguity (Sassoon 2012 gives *long* as an example of a DA ambiguous between temporal and spacial readings):

- (149)
- a. The boxes are identical with respect to size and weight.
 - b. Sam is intelligent / good in mathematics.
 - c. #The wedding is long {with respect to / in} temporal duration (but not with respect to space).

The question (Sassoon, 2012) poses concerns the way information about different dimensions may be incorporated within context to create an interpretation for a given adjective. One of the ways the dimension variable can be operated on is explicit (150) or implicit (151) binding – options not available for DAs (Bartsch, 1986; Landman, 1989):

- (150)
- a. Dan is {generally, otherwise, all in all} healthy.
 - b. #The table is long in {all, most, three, some} respects.
 - c. #The wedding / table is {generally, otherwise, all in all} long.

(151) The boxes are identical except for their size.

(151) intuitively conveys that the boxes are identical in **all** but one of the (contextually relevant) respects. The assumption is that whenever a multidimensional predicate is used without explicit dimension specification or binding, an implicit *dimension binding operation* *OP* binds the dimensions, creating a simple property of individuals.

The point Sassoon (2012) makes is that different *OP* can be lexically specified for different multidimensional adjectives. Thus an adjective *P* is *conjunctive* iff it denotes a set of entities that fall under **all** of its dimensions, and *disjunctive* iff it denotes a set of entities that fall under **some** of its dimensions. As an example consider that, intuitively, the antonyms *healthy* and *sick* have default interpretations equivalent to *healthy in every respect* vs. *sick in some respect* (Hoeksema, 1995).

Sassoon (2012) hypothesises (and confirms in a corpus study) the following typology of multidimensional adjectives based on logical dimension binding operations:

- Adjectives that are by default **conjunctive** (like *healthy*): entities are required to reach the standard in **all** of their dimensions.
- Adjectives that are by default **disjunctive** (like *sick*): entities are required to reach the standard in but **one** of their dimensions.
- Adjectives that are ‘mixed’ (like *intelligent*): pragmatics determines whether e.g., being intelligent in but one dimension (say, mathematics) suffices to count as intelligent, or every contextually relevant dimension counts.

For the third group (*good, intelligent*) – mixed adjectives – no operation is set semantically as default. I want to explore a possibility that evaluative adjectives belong exactly to the ‘mixed’ multidimensional adjectives category in that the ‘weight’ and the salience of the dimensions is not lexically fixed or quantified over and thus is subject to contextual and intra-speaker variation that would have direct effect on the truth of these predicates applied to the subject individual.¹⁴

There are several things to clarify to give a bit more explicit semantics to subjectivity of multidimensionality. Sassoon emphasises the distinction between logical and non-logical (averaged-similarity) dimension binding. The latter option was extensively supported for concepts underlying nouns and adjectives – for a review and experimental studies see (Murphy, 2002, ch. 3) and (Hampton, 1995, 1998). Sassoon (2012) argues that the multidimensional adjectives she focuses on involve logical dimensional binding (universal or existential) – rather than average-similarity – as their lexical default.

However, there are some open questions (Sassoon, 2012) does not give answer to. In particular, it is not clear how to analyse the class that is particularly relevant for

¹⁴The dimension weights might play a role in the semantics of conjunctive and disjunctive multidimensional predicates as well, but the effect of these weights on the truthful application of these predicates might be invisible, because they just require for all their dimensions or at least one of their dimensions to hold of their subject, respectively. I will argue for a different mechanism involved in the interpretation of mixed multidimensional adjectives.

the current discussion – the ‘mixed’ class, that maybe does not have the information about dimension binding lexically hard-wired at all. Let’s try to sketch an analysis of ‘mixed’ multidimensional adjectives and see how this leaves space for subjectivity. What I say below is not meant to be a full-fledged analysis and it leaves several major points for further clarification.

Let’s take a look at ‘non-logical’ approaches. The equation below is an example of how the similarity of two entities along their dimensions can be calculated in the ‘non-logical dimension binding’ theories (Murphy, 2002, p. 67). This is basically the same as calculating an Euclidean distance between two points in space, familiar from school geometry (the only difference from Euclidean distance being dimension weights). The two items here are i and j , Q is a dimension, m_{iQ} is i ’s value with respect to dimension Q , and w_Q is the weight of dimension Q .

$$(152) \quad d_{ij} = \sqrt{\sum_Q w_Q |m_{iQ} - m_{jQ}|^2}$$

Moving from similarity between entities to meeting the standard of a (multidimensional) predicate P , which is a more familiar way of talking about gradable adjectives in the linguistic literature, requires a bit of extra work. First, we need to decide what it means for a dimension to hold of an entity. Following Sassoon (2012), I assume that dimensions are predicates. So the value of a dimension Q applied to an individual would be 1 or 0 – true or false. For this an entity must meet a certain standard associated with the dimension – quite like positive forms of (one-)dimensional adjectives require of their subject to exceed their standard (however it is defined):

$$(153) \quad \llbracket \mathbf{Q} \rrbracket = \lambda x.1 \text{ iff } m_{xQ} > s_Q$$

Suppose a predicate P has three dimensions. With the truth value for an individual with respect to those three dimensions in hand, we get, for example, the following ordered set characterizing an individual: $\langle 0, 1, 0 \rangle$. Suppose, the individual is John, the predicate is *intelligent*, and the dimensions are good at math (false), reads a lot (true) and knows Classic Greek literature (false). Next, we need to weigh the dimensions – just as in the distance formula above, we multiply each value and the dimension weight. Assume good at math is very important (0.8 on the scale from 0 to 1), reading a lot is a bit less important (0.5), and Classic Greek literature does not mean much (0.1). Thus we get the following modified set for John’s (weighted) intelligence: $\langle 0, 0.5, 0 \rangle$.¹⁵

I suggest that there is an intuitive way to think about John’s intelligence (represented as above) exceeding a certain standard that must be met for truthful application of the predicate *intelligent*: if we take John’s intelligence as a vector, I propose that the suitable measure would be vector length (that has to exceed a certain standard vector length of intelligence).

¹⁵In this analysis, I seem to treat truth values as numbers. As noted by one of the reviewers of my manuscript discussing this analysis, this might be problematic, as truth values are just labels and not really numbers. Thus, we cannot say things like *I am tall plus he is short equals two*. I recognise the problem, but I think it can be solved, at least technically – I could postulate a shift from True to degree 1 and from False to degree 0. I leave solving the problem in a more enlightening way for future work.

The way the vector length is calculated is basically identical to the Euclidean distance above (the i entity from the distance measure (152) would be the endpoint of the vector – i.e. John’s coordinates on P ’s dimensions; the j entity would be zero – the beginning point of the vector). Here is how it would look for the three dimensions of *intelligent*, the result being John’s value on the measure function associated with *intelligent* ($m_{J,intelligent}$):

$$(154) \quad m_{J,intelligent} = \sqrt{0^2 + 0.5^2 + 0^2} = 0.5$$

For the predicate *intelligent* to truthfully apply to John, his measure of intelligence (say, as above) has to exceed a certain standard. How is this standard defined? I am not going to solve this issue here, but I note that this question is very similar to the question of how the standard in POS-DAs is defined. I will just use s_P for standard of the multidimensional predicate P and not say more about it here:

$$(155) \quad \llbracket \text{John is intelligent} \rrbracket = m_{J,intelligent} > s_P$$

The new analysis that I sketch here combines the ‘non-logical’ measure with a more familiar semantics of gradable adjectives, thus making the semantics of multidimensional adjectives close to that of DAs. One additional step is required though – first, we need to apply the dimensions to an individual in exactly the way DAs apply to an individual, then we combine the results of domain application to form a higher-order predicate involving a measure function as part of its semantics (as a possible solution I propose a parallel with vectors, and thus the measure would be vector length). The way the membership in a ‘mixed’ multidimensional adjective P is defined is again close to that of relative DAs – a certain standard vector length has to be exceeded.

Returning to subjectivity, I assume it is the effect of the weights assigned to different dimensions, as these weights can be judge-dependent. Depending on the different weights assigned to different dimensions by different judges, the measure function $m_{x,intelligent}$ would give different values for one and the same object, which could potentially result in different orderings of objects along the scale associated with *intelligent* for different judges, as the weight coefficient directly influences the vector length. This accounts for the fact that evaluative adjectives are predicates of scalar variation:

$$(156) \quad \llbracket m_{x,intelligent} \rrbracket^{c:w,t,j} = \lambda x. \sqrt{\sum_Q [w_Q^j (m_{x,Q} > s_Q)]^2}$$

This measure function is part of semantics of the multidimensional predicate *intelligent*. Thus *intelligent* has the following lexical semantics:

$$(157) \quad \llbracket \text{intelligent} \rrbracket^{c:w,t,j} = m_{x,intelligent} > s_P = \\ = \lambda x. \sqrt{\sum_Q [w_Q^j (m_{x,Q} > s_Q)]^2} > s_P$$

When the subject is added, the resulting sentence has the following semantics:

$$(158) \quad \begin{aligned} & \llbracket \text{John is intelligent} \rrbracket^{c;w,t,j} = 1 \text{ iff } m_{\text{John,intelligent}} > s_P = \\ & = \sqrt{\sum_Q [w_Q^j (m_{\text{John},Q} > s_Q)]^2} > s_P \end{aligned}$$

Basically, what the semantics in (158) says is that the truth of *John is intelligent* is dependent on how many ways of being intelligent apply to John, together with the importance of these ways (for the judge / speaker), and how these ways given their importance contribute to the overall prominence of John's intelligence – in particular, does it overall exceed the standard degree of intelligence that works as a cut-off point.

An interesting consequence of this analysis of 'mixed' multidimensional adjectives is that one might not need the mechanism of dimensional binding to cover the conjunctive and disjunctive multidimensional adjectives anymore, as it can be emulated by the vector lengths in combination with the type of s_P standard – maximum, minimum, or relative. Existential quantification over dimensions has the same effect as having a zero length as the s_P standard – saying that there has to be at least one dimension which applies to the subject is the same as saying that the vector is required to have a non-zero length. Similarly, universal quantification over dimensions has the same effect as requiring the maximally possible vector length for this particular predicate. Thus the conjunctive vs. disjunctive vs. 'mixed' multidimensional adjectives typology is totally parallel to the typology of (one-)dimensional adjectives with respect to the kind of standard they make use of (minimum, maximum, or relative, see Kennedy 2007 a.m.o.). Sassoon (2012) reports the correlation between predicates having minimum, maximum, or relative standard (according to tests involving degree modification) and their default dimension-quantification strategy, but what I suggest here makes it one and the same phenomenon, and thus the correlation is naturally explained.

Note that this account leaves space for further kinds of subjectivity in constructions with evaluative adjectives – the subjectivity coming from the vagueness of the standards s_Q and s_P . Say, when a dimension is specified, the subjectivity persists:

(159) I find John smart in math.

For the discussion of this kind of subjectivity – the subjectivity of vague standards – see the section on POS-DAs.¹⁶

A side-note about the relation between vague standards in the positive forms of evaluative adjectives and the subjective POS morpheme is due here. Remember the contrast in Japanese between POS-DAs and evaluative adjectives – the former but not the latter license a Dative experiencer-like DP. If the same kind of vague semantics is involved both in evaluative adjectives and in POS-DAs, why do we find a difference

¹⁶I predict that when the dimension is specified, the predicate remains subjective only in the positive form, thus something like (i) is predicted to be out:

(i) [?]I find John smarter in math than Bill.

The judgements about (i) are not very clear. I think (i) is good to the extent *smart in math* can be understood as a multidimensional predicate itself, so here we are entering the area of second-level multidimensionality.

in experiencer licensing? I believe these Japanese facts support Bierwisch's (1989) original idea that evaluative adjectives are not lexically gradable, in that they do not have a degree argument in their lexical semantics. This means that they do not need mediation of the POS morpheme to predicate directly over individuals – otherwise, the presence of a POS morpheme would license Dative experiencers with evaluative adjectives in exactly the same way as with POS-DAs (but see Morzycki 2012b for a critique of Bierwisch's analysis of evaluative adjectives).

Why don't evaluative adjective license Japanese Dative experiencers themselves if they have the POS-like semantics incorporated in their lexical meaning? I won't be able to pinpoint the relevant differences in the semantics of POS-DAs and evaluative adjectives, because I do not know enough about the properties of membership standards evaluative adjectives make use of – they might turn out to be different from POS-DAs in relevant respects. I leave this for future research.

To sum up, I suggest that the subjectivity of evaluative adjectives is due to multidimensionality of these predicates and the fact that the impact of these dimensions in the overall evaluation with respect to the multidimensional predicate can vary from judge to judge. This is the core of the analysis developed here.

Purpose-relativity in degree constructions

3.1 Introduction

This chapter is concerned with ‘purpose-relativity’ in degree constructions. The core observation that motivates this study is that at least in some cases the interpretation of gradable predicates in the positive form (with no overt degree morphology) can be relative to a certain ‘purpose’ or ‘goal’ made clear by the context. Some examples are shown in (1):

- (1) a. ‘War and Peace’ is a slightly long book.
b. John is a bit tall.

At least one of the interpretations that the sentences in (1) have – and definitely the most prominent one – involves reference to a contextual goal or purpose. Basically, (1) most prominently means that John’s height (or the length of ‘War and Peace’) slightly exceeds the degree compatible with some goal or purpose, which makes John’s height (or the length of ‘War and Peace’) ‘inappropriate’ for something. For example, John might be too tall to drive some small car, or ‘War and Peace’ might be a bit too long to expect 13-year-olds to read it in one week.

Sentences like (1) can also host an overt infinitival clause, with the similar interpretation:

- (2) a. ‘War and Peace’ is a slightly long book **to read in one week**.
b. John is a bit tall **to drive this car**.

The construction in (2-a) is called the Attributive-with-Infinitive construction (AIC), and it is discussed in (Fleisher, 2008, 2011). (1-b) and (2-b) are examples of what has been described under the name of the ‘functional standard’ (FS) construction (Kagan and Alexejenko, 2010; Bylinina, 2012).

The sentences in (2) and (1) seem to be roughly synonymous with the *too*-construction (3), which encodes precisely this ‘inappropriateness’ semantics with respect to a particular purpose:

- (3) a. ‘War and Peace’ is **too** long to read in one week.
 b. John is **too** tall to drive this car.

The *too*-construction – as well as the AIC and the FS construction – can be paraphrased by the comparative construction with an existential modal element in the standard clause:

- (4) a. ‘War and Peace’ is longer than it **may/can** be
 (given a purpose of reading it in one week).
 b. John is taller than he **may/can** be
 (given a purpose of him driving this car).

The questions I will be concerned with in this chapter are the following: how does the ‘purpose’ (overt or covert) affect the standard of comparison that is involved in the interpretation of these constructions? Is this effect a pragmatic or a more directly compositional one? Should the ‘modal comparative’ paraphrase in (4) have any structural and semantic consequences – i.e. should the analysis of the AIC and the FS construction be isomorphic to the existing analyses of the comparative constructions with modal standards (something that has been suggested for *too* – see Meier 2003; von Stechow et al. 2004)?

The answer to these questions crucially relies on the correct structure that needs to be assigned to the sentences in (2) – in particular, the syntactic and semantic status of the infinitival clause that is part of these constructions, and how it corresponds to what is known about the semantics of infinitival clauses independently.

The existing analysis of the AIC (Fleisher, 2008, 2011) suggests that the infinitival clause does not have any direct syntactic or semantic relation to the degree phrase or adjectival phrase, and opts for a pragmatic relation between the purpose and the standard. The relation between the infinitival clause and the degree phrase in the FS construction has never been analysed so far.

What I will argue for here is the opposite of Fleisher’s conclusion: I will motivate an analysis for the AIC under which the infinitival clause in AIC is an argument of the positive morpheme POS, thus bearing a direct semantic and structural relation to the DegP. In particular, I propose that the infinitival clause in the AIC denotes a degree interval – for example, if a 13-year-old can maximally read 200 pages in one week, then *for a 13-year-old to read* would denote an interval with the maximum point at 200 pages. In other words, I propose a semantic type for an infinitival relative clause that hasn’t been attested in the literature yet – namely, type $\langle dt \rangle$ (for finite degree relative clauses see Grosu and Landman 1998 a.o.). I also explore the ways to extend the same

analysis to the FS construction.

The chapter is structured as follows: section 3.2 starts with introducing the AIC and the puzzle it poses. I discuss and reject the existing analysis of AICs as regular infinitival relative clauses. In section 3.3, I motivate and formulate a *<dt>*-analysis of the AIC infinitival clause. Section 3.4 proposes that these infinitival clauses can serve as the standard in the positive construction. Section 3.5 looks for ways to extend this analysis to the FS construction. In section 3.6, I address the semantics of a peculiar class of *for*-phrases appearing in the same kind of construction and show that their semantics cannot be reduced to that of other known *for*-phrases in degree constructions – namely, CC- or judge *for*-phrases:

- (5) a. This is a long book for this class. ≈AIC
 b. This book is a bit long for this class. ≈FUNCT-STND

Section 3.7 concludes. In Appendix 1 I describe Fleisher's analysis of the AIC in more detail, for reference.

3.2 Not a regular relative clause

3.2.1 Introducing the puzzle and an existing analysis

The Attributive-with-Infinitive construction (AIC) described by Fleisher (2008, 2011) is illustrated in (2-a) above and (6) below:

- (6) a. 'Middlemarch' is a long book to assign.
 b. Bob is a short guy for the Lakers to draft.

As seen from the examples and from the name of the construction, its defining properties are the presence of a (gradable) adjective in the attributive position (*long*, *short* in (6)) and an infinitival clause (*to assign*, *for the Lakers to draft*) that stands in some unclear relation to the rest of the sentence and to the adjective in the DP it's adjacent to. On the semantic side, AIC is characterised by the 'inappropriateness' (≈ *too*) reading it gives rise to. The main question is how this semantic effect arises from the interaction of the two ingredients – the DegP/AdjP and the infinitival clause.¹

¹Fleisher distinguishes two types of AIC – clausal AIC and nominal AIC:

- (i) a. 'Middlemarch' is a **bad** book to assign. CLAUSAL AIC
 b. 'Middlemarch' is a **long** book to assign. NOMINAL AIC

The difference between clausal and nominal AICs lies in the relation the infinitive clause has to the rest of the sentence. Adjectives found in nominal AICs do not independently select infinitival arguments, while clausal AICs may only be formed with adjectives that are able to select such arguments. As an illustration, consider impersonal paraphrases involving an extraposed infinitival subject that are possible with *bad* but are out with *long*. Fleisher considers the possibility of such paraphrases a test for argumenthood of the infinitival clause:

- (ii) a. 'Middlemarch' is a bad book to assign. CLAUSAL AIC
 b. It is bad to assign 'Middlemarch'.

One possibility that would make the construction much less interesting is that it just contains a silent *too*, as these constructions are basically synonymous. I would like to point out some differences between the *too*-construction and the AIC that show that this analysis can't be right. First, differential measure phrases are licensed in the *too*-construction but not in the AIC:

- (7) a. This is 100-pp **too** long a book for me to read in one day.
 b. *This is (a) 100-pp long (a) book for me to read in one day.

Moreover, the gap is obligatory in the infinitival clause in the AIC, while only optional in the *too*-construction:

- (8) a. *Middlemarch is a long book to assign it.
 b. Middlemarch is *too* long a book to assign it.

Thus, the analysis of the AIC has to say more than just postulating an unpronounced *too*. To figure out the correct structure and semantics of the AIC, the status of the infinitival clause in this construction needs to be clarified. On the face of it, it has hybrid properties – intuitively, it corresponds to a standard of comparison (degree complement) in (9-b), as shown by a paraphrase in (4), but looks like a plain infinitival relative clause (9-c):

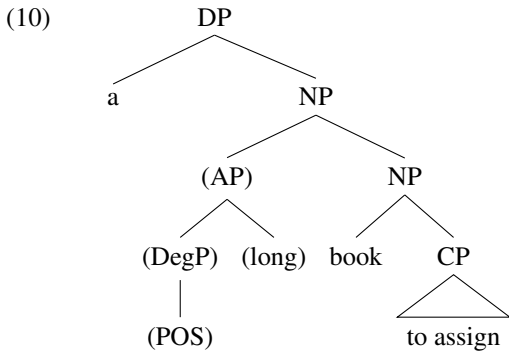
- (9) a. 'War and Peace' is a long book [for John to read]. AIC
 b. 'War and Peace' is a longer book [than Pnin is]. COMPARATIVE
 c. 'War and Peace' is a book [for John to read]. RELATIVE CLAUSE

These two parallels potentially correspond to two different analyses of the AIC – an analysis that gives an infinitival clause in the AIC the semantics of a standard of comparison that is thus a complement of a degree head; alternatively, it could be analysed as a plain infinitival relative clause, as in (9-c) – in this case, the effect on the standard of comparison in the AIC has to be derived by some additional mechanism. (Fleisher, 2008, 2011) goes for the second option, treating AIC infinitives as regular relative clauses adjoining to the lowest NP, the structure thus being the same no matter if the gradable adjective is there or not:

-
- (iii) a. 'Middlemarch' is a long book to assign. NOMINAL AIC
 b. *It is long to assign 'Middlemarch'.

A semantic difference between nominal and clausal AICs concerns the 'inappropriateness' reading, which clausal AICs lack. The sense of inappropriateness associated with (ii) is due to the meaning of *bad* – clausal AIC *Middlemarch is a good book to assign* there is no sense that 'Middlemarch' is inappropriately good.

Fleisher concentrates on nominal AICs, as the 'inappropriateness' effect that they give rise to is of particular interest. I won't address clausal AICs, and thus I will use the general term 'AIC' for nominal AICs in what follows.



As seen from (10), under this analysis, the infinitival clause doesn't have any direct syntactic (or semantic) relation to the adjectival phrase or the degree phrase, here consisting of the positive morpheme POS. Then the interpretational effect of the interaction between the degree phrase and the proposition introduced by the infinitival clause (the degree of length inappropriate for the purpose at hand) apparently cannot be derived in a straightforward compositional way. Fleisher argues that this interaction can nevertheless be emulated using pragmatic mechanisms of salience, which would give the right semantics given certain small changes in the classic denotation for the POS morpheme.

In a nutshell, Fleisher proposes that the NP with the infinitival relative clause (*book for John to read*) makes the set of books that are compatible with John reading them salient enough in context to affect the calculation of the standard for truthful application of *long* – in this case, to count as long, an object does not have to exceed the length standard for books in general (or for objects that have non-zero length in general), but rather for books that are ok for John to read (*book for John to read*). In very plain English, if 'War and Peace' is longer than the books that are ok for John to read, it's no longer good for this purpose.

The mechanism at play here is, according to Fleisher, very similar to what is going on with attributive adjectives in a DP that does not include an infinitival relative clause at all. Say, in a DP like *a tall man* the NP *man* also does not interact with a DegP (more specifically, the positive morpheme POS) in a direct compositional way, but it makes the set of men salient enough in the context so that the membership standard for the predicate *tall* is calculated with respect to the class of men – in other words, the NP *man* indirectly restricts the domain of the adjective *tall*.

The above is a bit of an oversimplification of Fleisher's analysis (see Appendix 1 for more details), but what is important at this point is the lack of a direct semantic or syntactic relation between the 'purpose' and the degree head that is responsible for the standard of comparison. The infinitival clause in (10) thus denotes, under Fleisher's analysis, roughly, a set of books that are good for John to read or that are compatible with John reading them (the good / compatible component to be clarified later in section 3.3).

I will argue against this analysis – not only the particular implementation, but against a more fundamental choice that underlies it. In particular, I am going to say

that the infinitival clause cannot be considered an (NP) adjunct without any direct compositional relation to the degree head. I will offer several arguments in favour of a ‘compositional’ view, under which the infinitival clause in the AIC is a complement of the degree head:

1. The inference patterns observed in AICs are not compatible with Fleisher’s predictions;
2. NPIs are not expected to be licensed (but in fact they are);
3. AIC infinitivals and infinitival relatives differ in syntactic distribution (the former but not the latter show island sensitivity);
4. AICs and regular infinitival relatives show different modal force;
5. The head NP is not needed at all;
6. AICs but not regular relatives license low degree modifiers;

Let’s consider these facts in turn.

3.2.2 Problems with Fleisher’s analysis

Inference patterns

The first observation is that if the AIC construction is reduced to the simple attributive adjective plus an infinitival relative clause modifying the NP, it gives the wrong predictions in terms of inference patterns in these constructions. A sentence with the simple DP with an attributive adjective entails that the NP predicate holds of the subject, as in (11):

(11) John is a **tall** boy. → John is a boy.

However, this pattern does not hold in AICs – if ‘War and Peace’ is a long book for John to read, it is clearly not the case that it is a suitable book for John to read (as a simple relative clause construction very strongly suggests):

(12) ‘War and Peace’ is a **long** book for John to read. →
 ‘War and Peace’ is a book for John to read.

This mismatch in the inference patterns might itself be enough to abandon the relative clause theory as not giving the right semantic result.

NPI licensing

There are more facts that point in the same direction. Regular infinitival relative clauses and infinitives in the AIC differ in the acceptability of NPIs. Take the same minimal pair (12) again. In (13-a) but not in (13-b) NPIs are licensed, which is unexpected under the view that the two share the structure and semantics:

- (13) a. ‘War and Peace’ is a **long** book [for **anybody** to **ever** read].
 b. ??‘War and Peace’ is a book [for **anybody** to **ever** read].

I will readdress NPI licensing in AICs later on, when I shape my analysis of this construction. What is crucial at this point is the contrast between the regular infinitival clauses and the AIC that the existing theory fails to predict.

Syntactic distribution

As one more problematic fact, AIC infinitival clauses and infinitival relatives can be shown to have different syntactic distribution. For example, the latter, but not the former, are acceptable when the host DP is in the subject position:

- (14) a. [_{DP} A book for John to read] is on the table.
 b. [_{DP} A **long** book for John to read] is on the table. *≠ too long*

Interestingly, the sentence in (14-b) is not ungrammatical, but just fails to have the ‘inappropriateness’ reading – the one roughly synonymous with the *too* construction (stating that the book that is on the table is inappropriate for John to read). What it can mean is that there is a long book on the table, and it is a book for John to read – this is the ‘regular’ attributive + infinitival relative clause reading.²

I suggest that the ‘inappropriateness’ reading is absent in (14-b) because it occurs in a syntactic island (in this case, subject island). Another illustration of syntactic island blocking the ‘inappropriateness’ reading comes from definite description islands:

- (15) a. John talked about a / the book to read during the spring break.
 b. (?)John talked about a long book to read during the spring break.
 (? under the *too* reading)
 c. #John talked about the long book to read during the spring break.
 ≠ too long

The contrast between the definite description and an indefinite DP is somewhat blurred in the object position due to slightly degraded status of the AIC in the object position in the first place (cf. footnote 2). Contrasting definite and indefinite DPs in a predicative

²In the object position, the judgements for the ‘inappropriateness’ reading are a little bit unclear:

- (i) a. The professor always assigns a book to read in one day.
 b. (?)The professor always assigns a (slightly) long book to read in one day.

I have no explanation why the sentences like (i-b) are slightly degraded for some speakers, but there is also a clear contrast between AICs in the object position and in the subject position – the latter but not the former being strikingly unacceptable with the ‘inappropriateness’ reading.

For very similar observations on *too*-fronting and the discussion of tentative factors that are at play see (O’Connor, 2012):

- (ii) a. ??Too lazy a student failed the test. (?? fronting in a subject)
 b. ?I failed too lazy a student. (? fronting in an object)
 c. John is too lazy a student. (✓ fronting in a predicate)

position of a copula construction gives a much clearer effect, but might be considered a bad illustration – copula constructions with indefinites have a different semantics than ‘identificational’ copular constructions with definite DP, and one could question whether this contrast is a minimal pair:

- (16) a. ‘War and Peace’ is a/the book for John to read during the spring break.
 b. ‘War and Peace’ is a long book for John to read during the spring break.
 c. #‘War and Peace’ is the long book for John to read during the spring break. *≠ too long*

Overall, although some of the available illustrations of island effects on the ‘inappropriateness’ reading are not 100% clear-cut, the island effect can be argued to be there. This is totally unexpected under Fleisher’s analysis, as for him the ‘inappropriateness’ reading and the ‘regular’ reading are just one and the same reading. The only point where the readings could diverge for a pragmatic account would be the positive morpheme using different predicates to calculate the standard degree (say, *book to read during the spring break* for the ‘inappropriateness’ reading and *book* for the ‘regular’ reading). However, even if the semantics could be spelled out to give the right truth-conditions for both cases, it would come as a surprise for this pragmatic view that the availability of the ‘inappropriateness’ reading is dependent on the syntactic position of the DP it is part of. In the analysis I formulate in section 3.5, island sensitivity will follow, as movement will be an essential part of the derivation.

Modal force

Looking closer at the semantics of regular infinitival relatives vs. the infinitival clauses in the AIC, one can notice a striking difference between these constructions in the available modal force. As observed in (Hackl and Nissenbaum, 2012), infinitival relatives are generally ambiguous between universal and existential modal readings:

- (17) He has come up with many **problems** *for us to work on*.
 = problems we MUST / CAN work on
 a. ...so we’d better keep at it until they’re all solved. (= MUST)
 b. ...if we want to work on a problem. (= CAN)

A disambiguating context can make a universal or an existential reading more prominent (compare (17-a) and (17-b)). Recall the paraphrase of the AIC in the beginning of the chapter in (4) that included existential modals:

- (18) War and Peace is a **long book** *for John to read in one day*.
 = The length of W&P exceeds the length a book CAN / MAY have given a purpose of John reading it in one day.

This reading is parallel to an existential (CAN) reading of (17) in terms of modal force. Substituting the existential modal by a universal one in a paraphrase of (18) gives the interpretation that the AIC sentence in (18) doesn’t have:

- (19) War and Peace is a **long book** for John to read in one day.
 ≠ The length of W&P exceeds the length a book MUST / HAS TO have given a purpose of John reading it in one day.

The lack of a universal MUST / HAVE TO reading of the AIC as in (19) is surprising under the assumption that (19) has a structure totally parallel to (18) and contains an infinitival relative clause. This alleged parallel predicts the modal force ambiguity to be equally available in both (19) and (18), but this is in fact not what we find.

Let's elaborate more on the properties of the attested and lacking readings of the AIC and the connection between modal force, on the one hand, and the degree semantics of the AIC and other degree constructions, on the other hand.

As I have pointed out above, the existential paraphrase of the AIC given in (18) is equivalent to the semantics of *too*-constructions. The absent universal reading would be similar to what the *enough*-construction conveys – comparison to the lower end of the degree interval compatible with the purpose (\approx sufficient degree). The link between a *too*-like semantics and an existential modal in the standard of comparison, and, similarly, between an *enough*-like semantics and a necessity modal in the standard is made in (von Stechow et al., 2004) and builds on an observation from (von Stechow, 1984; Heim, 2001). The observation is that possibility in the standard of comparison gives rise to a maximum reading, while a necessity in the standard of comparison gives rise to a minimum reading:

- (20) a. The paper is longer than allowed. (= excessive)
 b. The paper is longer than required. (= sufficient)

To see how exactly different strength of the modal gives rise to the maximum and minimum interpretation, look at the semantics of (20-a) and (20-b), respectively:

- (21) a. $\max\{d \mid \text{the paper is } d\text{-long in } w^* \} >$ THAN ALLOWED
 $\max\{d \mid \exists w \in \text{Acc: the paper is } d\text{-long in } w \}$
 b. $\max\{d \mid \text{the paper is } d\text{-long in } w^* \} >$ THAN REQUIRED
 $\max\{d \mid \forall w \in \text{Acc: the paper is } d\text{-long in } w \}$

As seen from (21), the sentences in (20) state an 'exceed' relation between the maximum points of two degree intervals – the one from the actual world w^* and the one defined with respect to a purpose. The difference between the universal and the existential modal has a direct effect on which degree interval is picked – in the case of the existential modal, the upper end of the degree interval would be a degree that is attested at least in **one** of the accessible worlds; on the other hand, when the modal is universal, the degree interval ends with a degree that is attested in **all** of the accessible worlds. Thus the degree interval in the standard of comparison would be larger if the modal in the standard clause is an existential one than if it is a universal one – and maximisation picks the **required maximum** with an existential modal, and the **required minimum** with a universal modal.

At least some of the existing analyses of *too*- and *enough*-constructions make use of this connection between modal force and the maximum vs. minimum interpretation,

positing a silent modal in the complement of *too* and *enough* (see Meier 2003; von Stechow et al. 2004):

- (22) a. [The paper is too long] \approx The paper is longer than it **can** be.
 b. [The paper is long enough] \approx The paper is longer than it **must** be.

Summing up, the absence of the *enough*-reading in the AIC, as in (19), can be seen as an instance of the absence of modal force ambiguity in AICs – unlike in regular infinitival relatives. The alleged parallel between the AIC and the regular infinitival relative construction fails to predict the lack of modal force ambiguity in the former.

Head NP is not necessary: FS construction

One more property of the infinitival clauses that contribute to the ‘inappropriateness’ reading when they are used in combination with gradable adjectives is that they don’t really need a head NP to host them – as in the FS construction:

- (23) ‘War and Peace’ is a bit **long** *to assign*.

This is absolutely incompatible with the view that the infinitival clause is a relative clause that needs to combine with the head NP. Evidently, all that is needed for the ‘inappropriateness’ reading to arise from the combination of the infinitival clause and the gradable adjective is an infinitival clause and a gradable adjective, and a non-compositional theory of their interaction makes this interaction opaque and much less straightforward without enough justification.

One could postulate a zero head NP in (23), suggesting that this infinitival clause still serves as a relative clause, modifying this empty NP:

- (24) ‘War and Peace’ is a bit **long** [\emptyset_{NP} *to assign*].

This kind of approach would face a difficulty explaining why the presence of the gradable adjective is crucial for the sentence to be grammatical, as omitting the AdjP from (24) would make the sentence degraded:

- (25) ??‘War and Peace’ is [\emptyset_{NP} *to assign*].

Furthermore, the zero NP analysis would predict the availability of a DP with a zero head in an argument position. The prediction is not borne out:

- (26) *John found [a **long** [\emptyset_{NP} *to assign*]].

Thus it seems reasonable to conclude that there is no head NP involved in the FS construction – and, as a consequence, the head NP is not needed to host an infinitival clause in a construction with an ‘inappropriateness’ interpretation. This would be a counterargument against a relative clause analysis, but there is a caveat. This counterargument would only be valid as long as we assume the same analysis for the AIC and the FS construction – in particular, that the infinitival clause that appears in (23) has

the same semantics as the infinitival clause that appears in the AIC. Though one might expect this to be so, it doesn't have to be. I return to this question later.

Low degree modifiers

A final observation that casts doubt on Fleisher's analysis has to do with distribution of low degree modifiers with gradable adjectives found in AICs. Adjectives that are found in the AIC are primarily those that were called **relative** gradable adjectives in the literature (Kennedy and McNally, 2005; Kennedy, 2007). The behaviour of degree modifiers such as *very*, *slightly*, *completely*, *almost* etc. has recently motivated a classification of gradable predicates on the basis of their scale structure (the assumption being that this is what degree modifiers are sensitive to). Here are the usually assumed types of scale structure (Kennedy and McNally, 2005):

(TOTALLY) OPEN:	○————○
LOWER CLOSED:	●————○
UPPER CLOSED:	○————●
(TOTALLY) CLOSED:	●————●

According to the classification in (Kennedy and McNally, 2005), relative adjectives lexicalize a totally open scale, while absolute adjectives lexicalize scales that have at least one closed end. One of the tests that has been used to tell relative adjectives from absolute ones has been their incompatibility with low degree modifiers such as *slightly* or *a bit* – not that the combination of relative adjectives and low degree modifiers is totally ungrammatical, but it is acceptable only under a certain very particular interpretation, as people have noticed:

(27) #/(?) slightly / a bit tall / long / short / wide...

The interpretation under which (27) is acceptable is precisely the 'inappropriateness' interpretation, or exceeding the maximum compatible with a certain purpose (Bylina, 2012; Solt, 2012). This effect cannot be easily accommodated under the non-compositional view that Fleisher formulates. It is not clear how calculating the standard based on a set of books or a set of books that are good for John to read could make a difference in acceptability of low degree modifiers – and this is the only difference between the 'regular' uses of relative gradable adjectives and relative gradable adjectives with an 'inappropriateness' reading, under (at least this version of) a pragmatic view.³

The facts discussed above strongly suggest that an alternative analysis is needed. One might wonder to what extent the counterarguments against Fleisher's analysis of

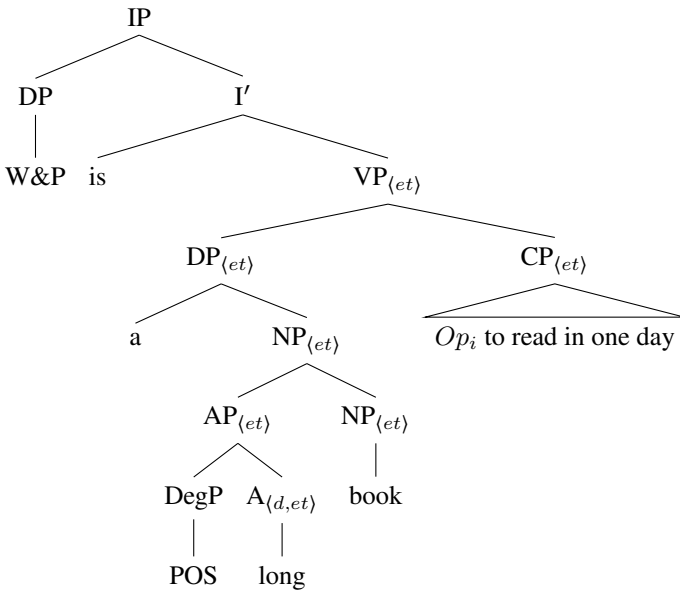
³Although the facts related to the distribution of low degree modifiers present a problem for any (straightforward) pragmatic analysis of the AIC, these facts are especially problematic under the exact implementation that Fleisher develops. His analysis requires a large difference between the subject and the standard defined by the infinitival clause. It is unclear how this large difference is compatible with the semantics of low degree modifiers that specify that the difference has to be small. For more details, see Appendix 1.

the AIC target his particular implementation rather than the idea of a pragmatic treatment of the construction. One could imagine another implementation of the pragmatic analysis – for example, the infinitival clause could be analysed as a purpose clause, quite like in the following sentence (example and constituency from Nissenbaum 2005, see also Faraci 1974; Jones 1985):

(28) John [_{VP(et)} [_{VP(et)} brought his cat] [_{CP(et)} *Op_i* for us to admire _{-i}]].

Assuming that the purpose clause attaches as an adjunct at the VP-level right before the subject gets merged, the hypothesised purpose-clause analysis of the AIC would amount to the following (simplified) structure:

(29) ‘War and Peace’ is a long book to read in one day.



This analysis shares many properties with the relative clause analysis proposed by Fleisher: the infinitival clause, according to the purpose-clause analysis would also denote a set of individuals, and would lack a direct structural relation to the DegP or the adjective. Thus the interpretational effect of ‘inappropriateness’ would have to be derived in some non-compositional, pragmatic way (potentially, a modification of Fleisher’s story could be developed to fill in the interpretational part of such an analysis). However, most of the counterarguments I list against the relative clause theory would hold for the purpose-clause analysis as well. Let me quickly illustrate the application of my counterarguments to this analysis.

First, NPIs are not in general licensed in the purpose clauses, as shown in (30)–unlike in the AIC (see section 2.2.2):

(30) *John [[brought this book] [for **anybody** to **ever** read --]].

Second, the syntactic distribution of the AIC infinitival clauses would be unexpected under a VP-level adjunct analysis. The island effects would be even more mysterious under the analysis that locates the infinitival clause outside of the DP which the DegP is part of – not only there is no reason for the infinitival clause to move outside of the DP together with the DegP, it is not even inside the DP in the first place. And indeed, the purpose clauses are not sensitive to the type of determiner that the object DP has:

(31) John [[brought **a / the** cat] [for us to admire --]].

Compare to the examples I discussed above that show that in the AIC, the ‘inappropriateness’ reading disappears inside a definite DP:

(32) #John talked about the long book to read during the spring break. ≠ *too long*

Third, the purpose-clause analysis doesn’t give any better clue about the low degree modifier distribution than the relative clause analysis does.

The other counter-arguments I have listed above seem less applicable to the purpose clause analysis. First, the inference patterns discussed in section 2.2.1 rely on the assumption made by the relative clause analysis that the infinitival clause together with the head NP forms a larger NP that should behave like a simplex head NP (but doesn’t) – repeating the relevant example here:

- (33) a. John is a **tall** boy. → John is a boy.
 b. ‘War and Peace’ is a **long** book for John to read. ↗
 ‘War and Peace’ is a book for John to read.

What kind of inference pattern is predicted for the purpose-clause analysis heavily depends on the particular way one would derive the desired ‘inappropriateness’ reading given the purpose-clause structure of the AIC. I won’t spell out the potential details as I believe the whole idea of the purpose-clause analysis of the AIC is not viable, so I leave the question of the inference patterns open.

The same holds for the modal ambiguity argument. The ambiguity in the modal force I have discussed for the infinitival relative clauses is not so obviously present or absent in the infinitival purpose clauses:

- (34) John brought his cat for us to admire.
 ? ‘John brought his cat and we CAN / HAVE TO admire it’

A serious discussion of the practically unstudied question if this paraphrase is the correct one for (34) would take us too far afield. I believe that the purpose-clause analysis doesn’t fit the data significantly better than Fleisher’s analysis, and this is not an artefact of a particular implementation – rather, the pragmatic approach to this construction should be given up and an alternative analysis should be developed along less pragmatic, but more structural lines. In the following two sections I develop such an alternative.

3.3 Degree infinitival clauses

I propose an analysis that groups the infinitival clause in the AIC together with a wider class of clauses that define a degree or set of degrees. Examples of this kind most famously include standard clauses in comparative and other degree constructions, as well as so-called ‘amount relatives’ (Carlson, 1977; Heim, 1987; Grosu and Landman, 1998).

3.3.1 The parallel: standards in comparative constructions

Consider standards in comparative constructions first. A standard of comparison in English is introduced by *than*, which can take either a DP or a CP:

- (35) a. John is taller [*than* Mary].
 b. John is taller [*than* Mary is].

It is questionable if the constructions in (35) share the same syntax and semantics. Some analyses argue precisely for this view, developing a ‘radical reduction’ analysis for (35-a), while (35-b) involves ellipsis of a smaller constituent – a VP (Bresnan, 1973; Hackl, 2000; Lechner, 2001, 2004; Bhatt and Takahashi, 2008):

- (36) a. John is taller [*than* Mary is ~~*d-tall*~~].
 b. John is taller [*than* Mary is ~~*d-tall*~~].

There are arguments against an ellipsis analysis of (35-a), but this is not directly relevant to the current discussion. Importantly, *than* **can** take a clausal complement, and some part of that clause gets elided, as in (36-b). Practically all the existing analyses of clausal standards of comparison involve degree abstraction in the standard clause, as in (37-b):

- (37) a. John is taller than Mary is.
 b. [*than* Mary is] = λd . Mary is *d*-tall

The degree abstraction in this clause can be shown to be the result of movement – presumably, a movement of a degree *wh*-operator. If an elided gradable predicate appears inside a syntactic island within the *than*-clause, the comparative construction becomes ungrammatical – quite like in degree questions with an overt degree *wh*-word (Bresnan, 1975):

- (38) a. *John is taller than he knows a boy [who is __].
 b. *How tall does John know a boy [who is __] ?

Thus the *than*-clause in (37-a) involves degree abstraction and denotes the set of degrees such that Mary is *d*-tall. I will talk about how the overall semantics of comparative constructions is built up from its ingredients in the next section, as the analysis I will build up for AICs will use comparative constructions as a very close parallel. Now I would like to introduce other relevant cases that constitute a context for developing

an analysis of infinitival clauses in AICs.

The analysis involving abstraction of a degree variable from within a clausal structure is not unique to comparative constructions. Rather, it is a standard way of treating a number of constructions involving quantificational degree morphology – equative constructions (von Stechow, 1984; Bierwisch, 1989; Schwarzschild and Wilkinson, 2002, a.m.o.), superlative constructions (Bresnan, 1973; Heim, 2001; Gajewski, 2010, a.m.o.), and maybe more. Another example of the same kind is degree questions, involving degree-abstraction as well (for more details see Rullmann 1995; Beck and Rullmann 1997, a.o.):

- (39) a. How tall is John?
 b. $LF \approx$ How [λd . John is d -tall]

The crucial difference between the quantificational degree constructions with degree abstraction discussed so far and the AIC is the lack of – at least, overt – degree morphology in the AIC. In the comparatives there is overt *more*, superlatives have *-est*, equatives have *as*, etc. AICs, in contrast, do not have overt degree-related morphology in the matrix clause, making the ‘degree’ relation between the matrix clause and the infinitival clause opaque. In this respect the AIC is close to ‘amount relatives’ (Carlson, 1977; Heim, 1987; Grosu and Landman, 1998). An example of an amount relative is shown in (40):

- (40) a. It will take us the rest of our lives to drink the champagne that they spilled that evening.
 b. $LF \approx$ It will take us the rest of our lives to drink the λd they spilled d -much champagne that evening.
 A. the amount of champagne
 #B. the actual champagne

(40) has an ‘amount’ interpretation which is distinct from the regular relative clause interpretation – the regular interpretation would have the strange implication that the champagne once spilled on the floor would be drunk again, while the amount reading just makes a statement about quantity of the spilled champagne.

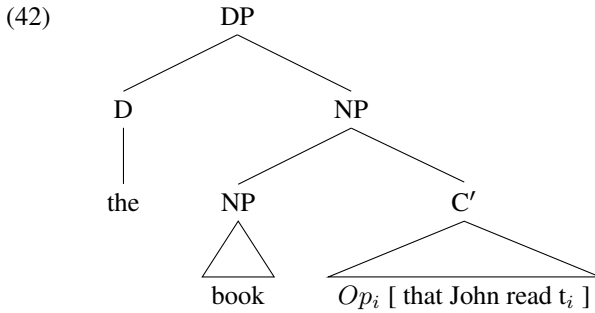
The degree abstraction that happens inside a relative clause has some implications for the status of the gap that the relative clause contains. It will prove instructive to elaborate on this a bit more.

Observe that a relative clause in (40) contains a gap corresponding to the head NP champagne:

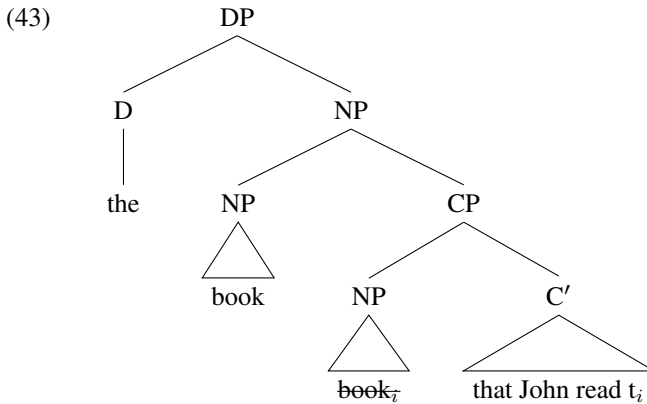
- (41) [DP the [NP champagne_{*i*} [CP that they spilled $\bar{\bar{t}}_i$ on the floor]]]

How different does the analysis of amount relatives have to be from the analysis of regular ones? The question boils down to the status of the gap. What are the possible ways to analyse the gap in a relative clause, in general (including amount relatives)? Let’s look at the existing analyses of relative clauses to list the possible ways to treat the gap in (41) and thus set the stage for an analysis of amount relatives that I will later use as an inspiration for my analysis of AIC infinitival clauses.

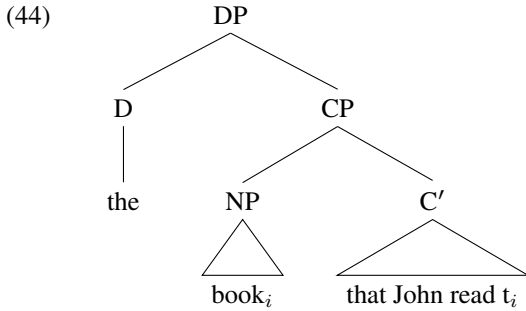
The theories of relative clause structure can be grouped into two classes – head-external and head-internal analyses. The now classic version of a ‘head-external’ syntactic analysis of relative clauses is based on (Chomsky, 1977) (with a lot of discussion that preceded that work – see, a.o., Quine 1960; Smith 1964; Montague 1973; Stockwell et al. 1973; Partee 1972, 1973, 1975; Ross 1967). The analysis involves operator movement from the base position of the gap to the edge of the relative clause CP. This CP modifies the head NP that is base generated externally to the relative clause CP – thus, the head of the relative clause and the gap are not parts of the same movement chain:



A head-external analysis has a version where both the external and the internal head have some structure, but the material in the CP-internal copy is elided under identity with the external head (Sauerland, 1998, 2000, 2002):

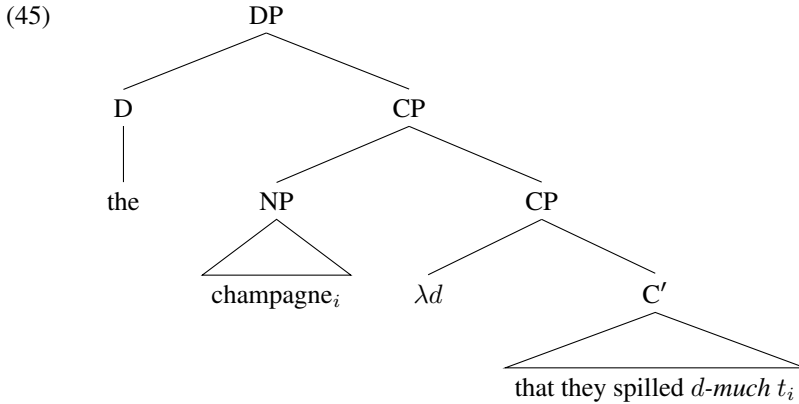


Under an alternative – ‘head-internal’ – analysis, the head NP originates inside the relative clause CP and then moves out, leaving a trace behind. The CP directly serves as a complement of the determiner. Under this analysis, the head NP and the gap are part of the same movement chain – which means that potentially the head NP could reconstruct in its base position at LF and be interpreted inside a CP in the position of a trace (Vergnaud, 1974; Kayne, 1994; Bianchi, 1999; Sauerland, 1998, 2000, 2002; Bhatt, 2002):



The head-internal and head-external structures for relative clauses are not competing analyses – rather, relative clauses show regular ambiguity between head-internal and head-external structures, as proposed in (Carlson, 1977; Heim, 1987; Sauerland, 1998, 2000, 2002).

Which of these options is a better starting point for the analysis of amount relatives, as in (41)? The existence of the amount readings of certain relative clauses has been taken as a reason for assuming a relative-clause-internal representation of the head – so that the degree abstraction would happen inside the relative clause. This effect could be achieved both under a raising analysis and under a matching analysis of relative clauses – what is crucial is having enough (unpronounced) interpretable material in the position of the gap inside the relative clause:



The simplified example derivation of an amount relative clause I give here involves a head-raising structure with degree abstraction from inside the relative clause. The head NP champagne moves out of its base position inside the relative CP, but at LF the lower copy (the trace) gets interpreted. This structure leaves some syntactic and semantic issues open – for example, it is not clear what causes degree abstraction in this structure, if it’s operator movement or the head NP movement – but this level of precision is enough for the current discussion (for more details see Grosu and Landman 1998).

3.3.2 Degree infinitival clauses: The proposal

I will use the analysis of amount relatives summed up above as an inspiration for my analysis of infinitival clauses in AICs – I would like to suggest that the infinitival clause in the AIC contributes to the degree semantics in a straightforward compositional way – namely, ultimately giving a degree description, quite like amount relatives. For this the gap inside the infinitival clause in the AIC has to contain some interpretable unpronounced material that would provide a degree variable to abstract over:

- (46) a. ‘War and Peace’ is a long book for John to read in one day.
 b. LF_{\approx} ‘W&P’ is a long book λd for John to read a d -long book in one day.

From this preliminary sketch of an AIC LF it is clear that the interpretation of the whole NP involving a gradable adjective happens inside the infinitival clause – quite parallel to the case of amount relatives discussed above (one can notice that the NP *long book* in this preliminary LF appears both in the matrix clause and in the infinitival clause, which is similar to the matching rather than raising analysis of the AIC infinitival clause – I return to this issue later on).

As a further hint in the same direction, consider the following data. Recall from the previous section that regular infinitival relative clauses are ambiguous with respect to modal force (Hackl and Nissenbaum, 2012):

- (47) He has come up with many **problems** *for us to work on*.
 = problems we MUST / CAN work on
 a. ...so we’d better keep at it until they’re all solved. (= MUST)
 b. ...if we want to work on a problem. (= CAN)

Hackl and Nissenbaum (2012) argue that the two modal readings are not just subject to free variation or pragmatic strengthening/weakening effects, but have clear structural correlates and requirements. In particular, (Hackl and Nissenbaum, 2012) show that CAN-readings of infinitival relatives involve reconstruction of the head NP into its base position inside the infinitival clause and thus its interpretation has to be internal to the relative clause. One way to see this is to force a reconstruction- or anti-reconstruction environment and see which reading survives. A reconstruction environment is a (syntactic) context that excludes the head-external analysis of the relative clause and thus eliminates the ambiguity that relative clauses generally possess. In a reconstruction environment the head-external structure would be unacceptable because it would violate some syntactic restriction or condition. For an anti-reconstruction environment, the opposite would hold – it would eliminate the regular ambiguity of a relative clause, but by forbidding the head-internal structure.

The most common way to force reconstruction or anti-reconstruction is using Condition C of the Binding Theory (Chomsky 1981, Buring 2005 a.m.o.). As is well-known, Condition C precludes referential expressions (R-expressions) from having a c-commanding antecedent. One illustration can be the ungrammaticality of sentences like (48), where *John* has a subject DP antecedent:

(48) *He_i likes John_i.

Chomsky (1993) proposes that whenever an R-expression in the head of a chain triggers a Condition C violation with respect to a pronoun that c-commands only the tail of the chain, this means that the R-expression is lexically represented in the tail position. A relevant example is in (49):

(49) *Which argument of John's_i father did he_i defend?

R-expression *John* in (49) is part of a *wh*-movement chain, but it triggers a Condition C violation with respect to a pronoun c-commanding only the tail of the chain. Thus, the R-expression has to be represented in the gap position by the point in the derivation where the restrictions of the binding theory apply. An example representation reflecting the stage at which Condition C is violated could be the following:

(50) [Which] did he_i defend [argument of John's_i father].

The correlation between reconstruction and Condition C effects in A and A'-movement was systematically discussed for scope reconstruction in Romero (1997) and Fox (1999, 2000). The cases described there didn't have to do with reconstruction in relative clauses in particular, but relative clauses are an obvious extension (Sauerland, 1998, 2000, 2002). Consider the following pair:

- (51) a. the [first picture of John_i] [that he_i ever said that Mary liked]
(high reading)
b. *the [first picture of John_i] [that he_i said that Mary ever liked]
(low reading)

A potentially ambiguous structure of a relative clause – allowing both a head-internal and head-external analysis – is disambiguated in (51-a) with the help of the NPI *ever* ((51-a) ≈ the first picture about which John ever said that Mary liked it; (51-b) ≈ the first picture that Mary ever liked, according to John). Ignoring the details of derivation of (51-a) and (51-b), I want to stress that the availability of low (in situ) interpretation of the head of the relative clause depends on the binding configuration as a result of the reconstruction of the head NP – in particular, violation of Condition C blocks the reconstruction and thus the low reading of the head NP.

Returning to infinitival clauses, Hackl and Nissenbaum (2012) observe that when reconstruction is precluded by Condition C violation, the existential modal force (the CAN reading) is not available:

(52) There are many [books about **John**_i] for **him**_i to read. (= MUST, *CAN)

If a head NP is reconstructed into its base position inside the infinitival clause, the referential DP *John* is bound by the pronominal subject of the infinitival clause, which is a combination ruled out by Condition C – quite like in the examples above:

(53) *[for him_i to read {books about John_i}]

At the same time, if a reconstruction is allowed (the minimal pair would be constructed by switching the pronoun and the proper name in (52)), the CAN-reading reemerges:

(54) There are many books about **him** for **John** to read. (CAN reading available)

In (54), reconstruction doesn't violate Condition C:

(55) [for John_i to read ⟨books about him_i⟩]

This pattern might be quite subtle for some speakers, but for many speakers the contrast is clearly there (see the discussion of the unreliability of Condition C-related judgements in the (anti)reconstruction environments in Bhatt 2002, ft. 24).

Hackl and Nissenbaum (2012) develop an analysis in terms of type-mismatch that aims at explaining this quite striking dependency between the possibility of reconstruction and the availability of CAN-readings, which I am not going to adopt or describe in detail. Rather I would like to point out that the same contrast holds for the AIC: in the environment where an infinitival-clause-internal interpretation is forced, the 'inappropriateness' reading is available, unlike in an anti-reconstruction environment. I am using Condition C violation again as a way to force (anti-)reconstruction:

(56) a. This is a [long book about the history of **his** country] [for **John** to read].
≈ too
 b. This is a [long book about the history of **John's** country] [for **him** to read].
**too*

While (56-a) has a meaning that the book is too long for John to read, the sentence in (56-b) doesn't have this reading. The only interpretation it has is a 'plain positive' interpretation – this is a book that John should read, and it is a long book.

If the head NP is reconstructed inside the infinitival clause in (56-b), Condition C would be violated, as *John* would be bound by the subject:

(57) *[for him_i to read ⟨ a long book about the history of John's_i country ⟩]

In (56-a), in contrast, infinitival-clause-internal interpretation of the head NP wouldn't violate Condition C:

(58) [for John_i to read ⟨ a long book about the history of his_i country ⟩]

This contrast, again, is quite subtle for some speakers who report the lack of correlation between the possibility of reconstruction and the availability of the 'inappropriateness' interpretation, but the presence of this effect for other speakers needs to be explained. I take this contrast as a hint in the direction of an analysis of infinitival clauses in the AIC that I am going to develop.

I do not commit myself to a particular explanation for the dependency between modal force and reconstruction in infinitival clauses (see Hackl and Nissenbaum 2012 for discussion), but I propose that the same dependency is observed in the AIC as well. Together with the Condition C facts, and in light of the existing analysis of amount relatives and other degree clauses that I use as parallel cases, I conclude that in the

AIC, the head NP has to be interpreted inside the infinitival clause for the ‘inappropriateness’ reading to arise.

I’d like to put forward an analysis under which in the AIC, the head NP together with the gradable adjective has to be interpreted inside the infinitival clause. I propose that the ‘inappropriateness’ reading that is characteristic of the AIC makes crucial use of the gradable predicate inside the infinitival clause – in particular, of the degree variable that the gradable adjective makes available. I suggest that the degree argument of the gradable predicate that is part of the reconstructed NP is abstracted over, quite like in amount relatives discussed above. Thus the semantic type of the infinitival clause would be a set of degrees $\langle dt \rangle$:

$$(59) \quad \llbracket \text{for J. to read } a\text{-long } \textit{book} \text{ today} \rrbracket = \lambda d. \diamond \text{ J. reads a } d\text{-long book today}$$

The reader familiar with the literature on amount relatives and comparative constructions cited above might have noticed that one common ingredient of their analysis is missing from my discussion so far – namely, the maximisation operation applying to the degree interval, so that the clause ends up a degree description rather than the description of the degree interval. Maximisation takes a degree interval as its input and returns the upper bound of this interval as its output. Thus, if maximisation was to apply to (59), the result would be a single degree such that it is a maximum length of a book that John can read today:

$$(60) \quad \llbracket \text{for J. to read } a\text{-long } \textit{book} \text{ today} \rrbracket = \mathbf{max}(\lambda d. \diamond \text{ J. reads a } d\text{-long book today})$$

Maximisation of different plural objects has been proposed to be part of semantics in a variety of constructions, like plural anaphora (Evans, 1980; Kadmon, 1987), questions (Groenendijk and Stokhof, 1982), free relatives (Jacobson, 1995). For a comprehensive discussion see (Rullmann, 1995). Here is a denotation of a free relative clause as discussed in (Jacobson, 1995):

$$(61) \quad \llbracket \text{what we liked} \rrbracket = \mathbf{max}(\lambda x. \text{ we liked } x).$$

Maximisation in the domain of degrees in particular has been claimed to be at work in semantics of amount relatives (Grosu and Landman, 1998) and the standard clauses in comparative constructions (von Stechow, 1984; Heim, 2001; Beck, 2010):

$$(62) \quad \llbracket \text{than John is } \textit{tall} \rrbracket = \mathbf{max}(\lambda d. \text{ John is } d\text{-tall})$$

Should maximisation be part of the semantics of the infinitival clause in the AIC? From what I have said so far, the answer to this question is unclear. One could postulate maximisation at the edge of the degree infinitival clause just to keep the parallel to the other cases discussed in this section – amount relatives and the standard clauses of comparative construction. But, first of all, the exact point where the maximisation happens in, for example, comparative constructions is still the subject of debate in the literature. Many analyses locate the maximisation not at the edge of a *than*-clause, but attribute it to another element in the comparative construction – namely, a comparative morpheme (for a summary of this discussion, see Beck 2010). Moreover, the choice

between type *d* and type *<dt>* does not make much sense at this point, where the overall analysis of AICs has not yet been formulated.

Before I sum up the conclusions of this section, let me fill in one missing ingredient of the semantics of degree infinitival clauses. Throughout the discussion I've been assuming that the infinitival clauses are inherently modal. First of all, this assumption is not as obvious as it might seem. As Bhatt (2006) discusses, not all infinitival clauses are inherently modal. In particular, subject infinitivals (infinitival clauses with a gap in the subject position) get a non-modal interpretation in a certain class of contexts – namely, in combination with superlatives, ordinals, or *only*:

- (63) a. the best book [to __ appear on this topic until now]
 ≈ the best book that has appeared until now
 b. the first woman [to __ go in space]
 ≈ the first woman that has been in space

The infinitival clauses with an object gap, to the contrary, always get a modal interpretation:

- (64) This is the (best) book [to read __ on this topic].
 ≈ This is the best book one should read on this topic

The AIC infinitival clauses can contain object gaps (65-a) – and even in cases where the gap of the infinitival clause is in the subject position, the non-modal interpretation is not possible due to the lack of the licensing items in the AIC (65-b):

- (65) a. This is a long book [for John to read __]
 ≈ This book is longer than what John can read.
 ≠ This book is longer than what John has read.
 b. John is a tall guy [to __ drive this car]
 ≈ John is taller than he can be to drive this car.
 ≠ John is taller than people who have driven this car.

Thus, the infinitival clauses in the AIC are indeed inherently modal. What kind of modality is it? In this chapter, I have so far discussed the modal force but not the modal flavour involved in the interpretation of the infinitival clauses in the AIC.⁴

Intuitively, the infinitival clause in the AIC tells us something about what is desirable, reasonable or normal given the facts of the world. In the analysis Fleisher (2008, 2011) develops, the modality associated with the AIC infinitivals is treated as bouletic – i.e. describing the desired state of affairs. But as Fleisher himself notes, the AIC modality is probably broader than suggested by the term 'bouletic'. Very often it indicates what is 'normal' or 'expected' rather than what is strictly speaking desirable. I believe the type of modality involved in AIC infinitival clauses falls under the rubric of 'normative' modality – see (Saebø, 2009). Basically, it is root modality with

⁴See also Chapter 2 'Judge-dependence in degree constructions', where I briefly discuss the modal flavour of 'modal degree constructions' with infinitival clauses. The AIC is one of these constructions, along with the FS construction and the *too*-construction. What I say here mostly repeats the discussion from the previous chapter.

a ‘normative’ ordering source (see Kratzer, 1981). A normative ordering source can just be preferences of the judge in the actual world, and the ‘purpose’ or a ‘goal’ can be taken to restrict the modal base (Saebø, 2009), though there might be other ways to implement the intuition that something is better or worse from someone’s point of view with respect to a particular purpose. It is not clear if strictly deontic readings – which are available at least in some AIC examples – should be treated as a subclass of normative modal readings. I leave this issue aside. One example of a modal verb which is clearly lexically ‘normative’ is English *ought*. In what follows I will sometimes use a short ‘bouletic’ paraphrase of modal infinitival clauses – something like *for John to read* \approx *good for John to read*, but this is only meant as a shortcut for the range of possible ‘normative’ readings described here.

With this slightly more detailed understanding of the modal semantics of the AIC, let’s move to the section summary and the missing details of the analysis of the AIC.

What we have so far is the semantics of the infinitival clause that is part of the AIC – I have proposed that this infinitival clause denotes a degree interval. This semantics is a result of lambda-abstraction over a degree variable that is introduced by a gradable adjective inside the infinitival clause. This gradable predicate is part of the DP in the gap position, presumably deleted by ellipsis. I point out that there might be maximisation happening at the edge of the infinitival clause, but I postpone the decision if it should be part of the analysis till the next section. What my analysis is still missing is the external syntax and semantics of this infinitival clause and how this infinitival clause interacts with the rest of the AIC. I will now develop this part of the analysis.

3.4 The status of the infinitival clause in the AIC

3.4.1 The analysis

Recall the discussion in section 3.2 about whether AICs can be seen as semantically – and, potentially, structurally – isomorphic to comparative constructions, where the subordinate clause defines a standard of comparison for a degree head in the matrix clause:

- (66) a. ‘War and Peace’ is a long book [for John to read]. AIC
 b. ‘War and Peace’ is a longer book [than ‘Pnin’ is]. COMPARATIVE

The previous section proposes the semantics for the infinitival clause in the AIC that is indeed very similar to the semantics of standard clauses in comparative constructions. In this section I will argue for an analysis of the AIC that deepens the analogy between the AIC and the comparative construction. Unlike in the existing pragmatic analysis of the AIC (Fleisher, 2008, 2011), I suggest that the analysis of (66-a) as parallel to (66-b) is a viable, intuitive and empirically justified option.

Thus, I propose that the AIC is very similar to the comparative construction, with two differences – 1) the degree head is the positive morpheme rather than the comparative morpheme; 2) the complement of the degree head is the infinitival clause rather than a *than*-clause. The parallel between POS and the comparative morpheme is quite

close already, as they both basically encode a relation between two degrees or sets of degrees.

I start spelling out the details by reconsidering the classic denotation for the positive morpheme (modified from Kennedy 2007):

$$(67) \quad \llbracket \text{POS} \rrbracket_{\langle \langle d, et \rangle et \rangle} = \lambda G_{\langle d, et \rangle} \lambda x_e. \mathbf{max}(\lambda d. G(d)(x)) > d_{ST}$$

(67) states that POS takes a gradable predicate of type $\langle d, et \rangle^5$ and an individual as its arguments and returns a truth value depending on whether the individual's degree exceeds the standard s . The standard degree d_{ST} is given by the context, but does not enter into a compositional relation with POS as its argument. Pursuing an analysis that gives the infinitival clause in AICs the status of a standard-denoting expression would force us to allow for this possibility – so that POS would now have an argument slot for the standard degree. In what follows I develop an implementation of this idea for AICs.

Let's take a look at the existing analyses of MORE and see how they make use of the standard of comparison. There are two very common denotations for a comparative morpheme that are very often found in the literature – a 2-place MORE and a 3-place MORE (Heim, 1985; Bhatt and Takahashi, 2008; Merchant, 2009, a.m.o.):

$$(68) \quad \begin{array}{l} \text{a.} \quad \llbracket \text{MORE}_2 \rrbracket_{\langle \langle dt \rangle \langle dt \rangle t \rangle} = \lambda D_{\langle dt \rangle} \lambda D'_{\langle dt \rangle} . \mathbf{max}(D') > \mathbf{max}(D) \\ \text{b.} \quad \llbracket \text{MORE}_3 \rrbracket_{\langle \langle e \rangle \langle d, et \rangle et \rangle} = \\ \quad \lambda s_e \lambda G_{\langle d, et \rangle} \lambda x_e. \mathbf{max}(\lambda d. G(d)(x)) > \mathbf{max}(\lambda d. G(d)(s)) \end{array}$$

In the case of a 2-place MORE, as shown in (68-a), the comparative morpheme takes two sets of degrees and returns 'true' if the maximal point of the second set exceeds the maximal point of the first set. In some versions of the semantics of a 2-place MORE the relation encoded by the comparative morpheme is between two individual degrees rather than between two sets of degrees (see Heim 2006; Beck 2010):

$$(69) \quad \llbracket \text{MORE}'_2 \rrbracket_{\langle d, dt \rangle} = \lambda d \lambda d' . d' > d$$

One way for this denotation for a comparative morpheme to work is to assume that maximisation operations that are part of the standard comparative morpheme denotation in (68-a) are in fact independent of MORE and should not be part of the semantics of the comparative itself. Instead, maximisation could be seen as a more general mechanism allowing to go from a description of a set to an object, the only contribution of the comparative morpheme in this case being the 'exceed' relation between two degrees.

This 'external maximisation' view is intuitively attractive if one recalls the discussion from the previous section with the examples of maximisation processes across

⁵An equivalent denotation for POS could be formulated with the first argument being a measure function of type $\langle ed \rangle$ rather than a gradable predicate of type $\langle d, et \rangle$. This argument slot corresponds to the type of the gradable adjective POS combines with, and the choice of $\langle ed \rangle$ vs $\langle d, et \rangle$ depends on the semantics for gradable adjectives that one wants to adopt. This distinction is not crucial for the purposes of the current discussion, and I use type $\langle d, et \rangle$ for gradable adjectives in what follows. For a discussion of measure function semantics for gradable adjectives see (Kennedy, 2007).

constructions, not necessarily involving a comparative morpheme or other degree morphology.

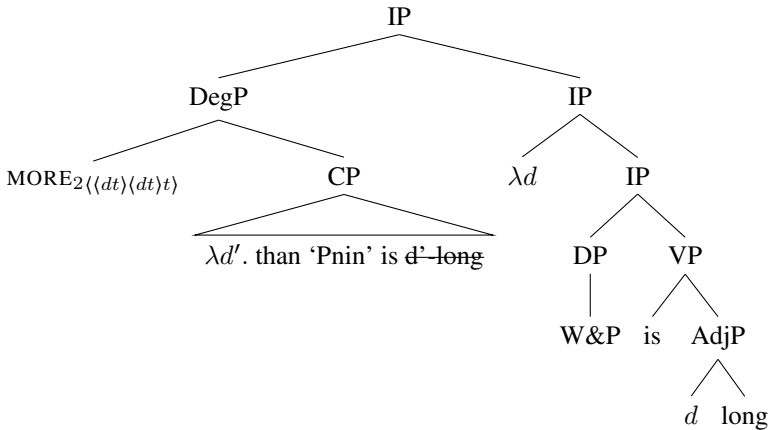
On the other hand, the denotation involving two sets of degrees, as in (68-a), has a very clear intuitive basis as well. This denotation makes a comparative morpheme very similar to the generalised quantifiers in the domain of individuals, which describe a relation between two sets:

$$(70) \quad \llbracket \text{more than five} \rrbracket_{\langle \langle et \rangle \langle et \rangle t \rangle} = \lambda P_{\langle et \rangle} \lambda Q_{\langle et \rangle} . |P \cap Q| > 5$$

The parallel between generalised quantifiers over individuals and MORE as a generalised quantifier over degrees is carefully explored in (Heim, 1985, 2006; Matushansky, 2002a). How does the 2-place MORE get interpreted? It cannot stay in situ to get its interpretation because of the type mismatch between the adjective and the comparative morpheme. After MORE combines with the standard clause, the combination is of type $\langle dt, t \rangle$, while the type of the gradable adjective is $\langle d, et \rangle$. The degree phrase has to undergo QR leaving the trace of type d behind. This trace of type d can combine felicitously with the gradable adjective with a type $\langle et \rangle$ result, combining later with the subject, the result being a truth value. The movement of DegP is accompanied by lambda-abstraction over the degree variable, so that the resulting semantic type of the matrix clause would be $\langle dt \rangle$ – quite like the semantic type of the standard clause. Two arguments of type $\langle dt \rangle$ is exactly what MORE can combine with. Movement of the DegP is also motivated by ellipsis resolution in the *than*-clause, which has been argued to be the case of antecedent-contained deletion (first proposed by Larson 1987). If the DegP with the *than*-clause remains in situ, this would result in infinite regress in the ellipsis site (see Heim 2001 a.m.o.).

An example structure for the comparative construction is shown below:

(71) ‘War and Peace’ is longer than ‘Pnin’ is.



The theory of comparative constructions involving movement of the DegP gets support from the data showing that comparatives (at least in combination with the standard clause) obey island constraints. As one example, consider the definite description

island, which cannot contain a comparative morpheme with a standard clause. The reason is that movement is prohibited from the definite description, and DegP cannot move out to get its interpretation (for a discussion of comparatives in definite descriptions see Gawron 1995 and references therein):

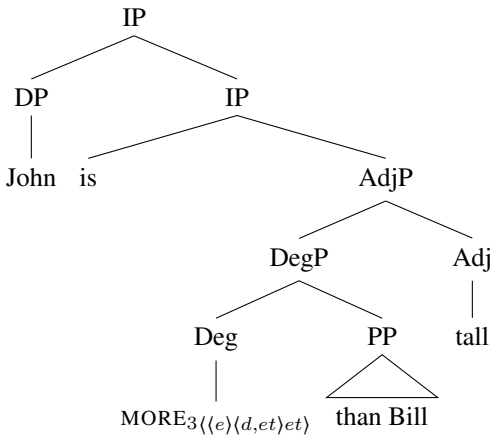
(72) *John bought [the more expensive car than me / than I did / than the BMW].

Under an alternative – 3-place – semantics of a comparative morpheme, repeated here from (68-b), it combines directly with a gradable adjective (in the implementation I use, a gradable predicate of type $\langle d, et \rangle$) and two individuals – the subject individual and the standard individual:

(73) $\llbracket \text{MORE}_3 \rrbracket_{\langle \langle e \rangle \langle d, et \rangle et \rangle} =$
 $\lambda s_e \lambda G_{\langle d, et \rangle} \lambda x_e. \mathbf{max}(\lambda d. G(d)(x)) > \mathbf{max}(\lambda d. G(d)(s))$

Unlike a 2-place MORE, the comparative with a semantics as in (73) can be interpreted in situ, but is only applicable to the comparative constructions with a phrasal standard – the standard of the type e . See a somewhat sketchy structure of a comparative construction involving a 3-place MORE in (74):

(74) John is taller than Bill.



The availability of a 3-place MORE is crucially dependent on the availability of phrasal standards of comparison. The availability of a phrasal *than* has been argued for English in (Hankamer, 1973; Napoli, 1983, a.o.) (though see Lechner 2001, 2004 for a clausal-only analysis of *than*-clauses in English). The availability of a 3-place MORE has been discussed for other languages as well – see the discussion in (Pancheva, 2006; Bhatt and Takahashi, 2008; Merchant, 2009, a.o.).

Which of the analyses of comparative constructions should serve as a prototype for the analysis of the AIC? Neither of the denotations of MORE is very similar to the classic denotation for POS that we had in (67). The 2-place MORE (unlike a 3-place one) can combine directly with a standard of type $\langle dt \rangle$ – the type of the degree infinitival clause in AIC, as argued for in the previous section. On the other hand,

the 2-place MORE doesn't have an argument corresponding to the gradable adjective or the argument corresponding to the subject, which would make the interpretation of the AIC straightforward. The 3-place MORE has argument slots for the gradable adjective and the subject, but the standard argument that it takes is an individual rather than a degree or degree interval.

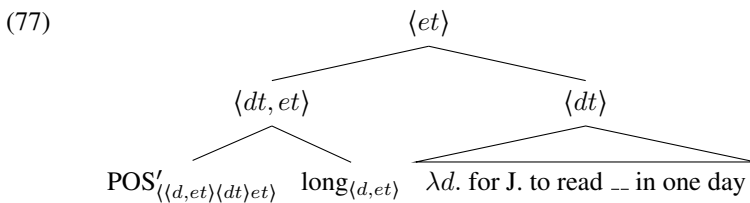
However, these two entries – a 2-place MORE and a 3-place MORE – do not exhaust the existing options for the semantics of the comparative morpheme. For example, (Alrenga et al., 2012) argue for a 'hybrid' entry for MORE, where the gradable predicate and the subject are arguments of MORE quite like in a 3-place MORE discussed above, but the standard argument is a degree or degree interval rather than an individual – more like in a 2-place MORE (I use the degree interval $\langle dt \rangle$ version of the standard instead of a type d version, but it's not crucial here):

$$(75) \quad \llbracket \text{MORE}'_3 \rrbracket_{\langle\langle d, et \rangle \langle dt \rangle et \rangle} = \lambda G_{\langle d, et \rangle} \lambda S_{dt} \lambda x_e. \mathbf{max}(\lambda d. G(d)(x)) > \mathbf{max}(S)$$

Recall the standard denotation for POS that I have introduced in (67) above. It is very similar to the 'hybrid' MORE'_3 in (75) – in fact, they are identical modulo the status of the standard of comparison. In POS, the standard is given contextually, while in MORE'_3 , it is supplied as an argument. This is exactly the modification of POS I was looking for to allow for a compositional $\langle dt \rangle$ standard of comparison for POS. A minimal modification in the familiar denotation for POS assimilation it to the 'hybrid' MORE'_3 would seem to give the result needed. I underline the standard-related parts of the POS denotation that are modified compared to the classic denotation for POS:⁶

$$(76) \quad \begin{array}{l} \text{a. } \llbracket \text{POS} \rrbracket_{\langle\langle d, et \rangle et \rangle} = \lambda G_{\langle d, et \rangle} \lambda x_e. \mathbf{max}(\lambda d. G(d)(x)) > d_{ST} \quad \longrightarrow \\ \text{b. } \llbracket \text{POS}' \rrbracket_{\langle\langle d, et \rangle \langle dt \rangle et \rangle} = \llbracket \text{MORE}'_3 \rrbracket_{\langle\langle d, et \rangle \langle dt \rangle et \rangle} = \\ \lambda G_{\langle d, et \rangle} \lambda S_{dt} \lambda x_e. \mathbf{max}(\lambda d. G(d)(x)) > \underline{\mathbf{max}(S)} \end{array}$$

In (77) I sketch the structure of a fragment of the AIC given the $\langle dt \rangle$ type of the infinitival clause and a denotation of POS' as formulated in (76-b). I deliberately omit the syntactic labels from the constituents (as any of the possible solutions would need justification, and the exact labels are not that relevant now) and the rest of the construction, as I focus on it right below:



⁶Notice that the order of the gradable predicate and the standard argument has switched compared to the regular 3-place MORE. This switched order results in two slightly different potential structures, but the difference between them won't matter much for the current discussion, and I leave the order of the arguments in MORE'_3 the same as in the original work by (Alrenga et al., 2012) here.

An important feature of this alleged structure for the AIC is that the degree phrase has to be interpreted *in situ* – the denotation for POS' used here combines with the standard clause and with the gradable predicate (and, potentially, with the subject – the step omitted here) directly, without moving out of its base position. But this *in situ* application is problematic if one recalls two properties of the AIC discussed in the previous section – island sensitivity and the clause-internal interpretation of the head NP. Drawing a parallel between these facts in the AIC and the facts that were claimed to characterise comparative constructions – QR movement of the DegP out of its base position for type-mismatch reasons and for reasons of ellipsis resolution – I conclude that the *in situ* interpretation of a DegP in the AIC is not the right direction to go trying to account for the properties of the construction.

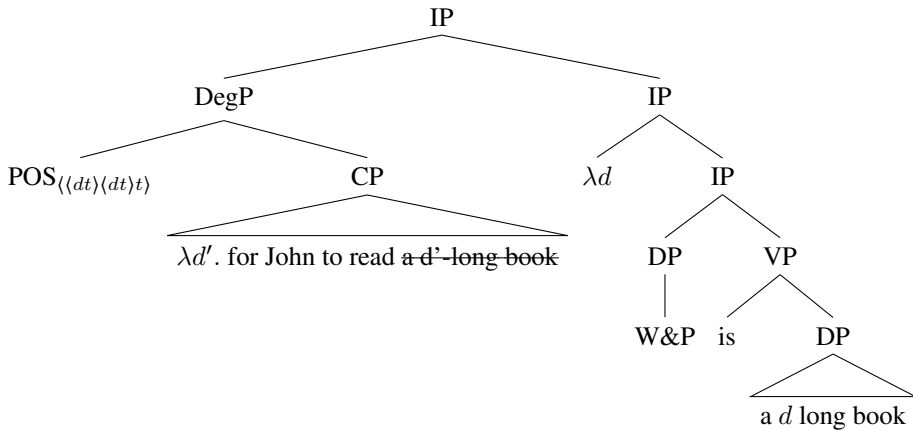
Recall from the discussion of 3- vs. 2-place MORE that the latter but not the former has to move out by QR movement to get its interpretation and to licence ellipsis in the standard clause. The properties of the AIC strongly suggest a very similar process – and thus, a very similar underlying structure. The denotation of the positive morpheme that would have the right effect on the structure and the derivation thus can be parallel to the denotation of the comparative morpheme that has been argued for to derive the observed effects.

Thus I propose a 2-place POS with the same motivation as for a 2-place MORE:

$$(78) \quad \llbracket \text{POS}_2 \rrbracket_{\langle \langle dt \rangle \langle dt \rangle t \rangle} = \llbracket \text{MORE}_2 \rrbracket_{\langle \langle dt \rangle \langle dt \rangle t \rangle} = \lambda P_{\langle dt \rangle} \lambda Q_{\langle dt \rangle} \cdot \mathbf{max}(Q) > \mathbf{max}(Q)$$

To get interpreted, POS₂ needs to move out of its base position, like 2-place MORE. DegP movement leaves a trace of type *d* in the base position, accompanied by lambda-abstraction over the *d*-variable below the landing site of DegP. In this way the second $\langle dt \rangle$ argument of POS₂ is formed. The infinitival clause either moves with the positive morpheme, or is merged counter-cyclically (as argued in Bhatt and Pancheva 2004 for *than*-clauses in comparative constructions). Basically, I suggest the following structure for the AIC, that is the same as a pretty much standard analysis of comparatives involving a 2-place MORE:

$$(79) \quad \text{'War and Peace' is a long book for John to read.}$$



The semantic derivation is thus also totally parallel to that in comparative constructions:

$$(80) \quad \llbracket \text{‘War and Peace’ is a long book for John to read} \rrbracket = \llbracket \text{POS}_2 \langle \llbracket \text{for J. to read } a\text{-long book} \rrbracket \rangle \langle \llbracket \text{‘War and Peace’ is a } d\text{-long book} \rrbracket \rangle = \mathbf{max}(\lambda d. \text{W\&P is a } d\text{-long book}) > \mathbf{max}(\lambda d'. \text{for John to read } a\text{-}d'\text{-long book})$$

Let’s take a look at how this analysis deals with the properties of the AIC discussed in section 3.2.

3.4.2 Consequences

The analysis I have proposed has several desirable consequences. Most noticeably, the AIC and the infinitival relative clause construction end up being different constructions, which is good given the numerous differences between them listed in section 3.2. I discuss these properties in turn.

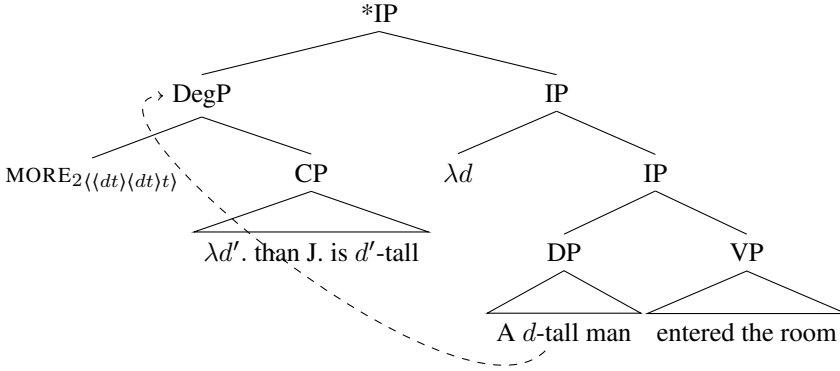
Island sensitivity

Island sensitivity of the ‘inappropriateness’ reading that is characteristic of the AIC is naturally explained under an analysis that involves DegP movement. The same restriction is known to hold for comparative constructions, as discussed above:

- (81) a. *[A taller man than John is] entered the room. SUBJECT ISLAND
- b. *I bought [the more expensive ring than John did]. DEFINITE DP

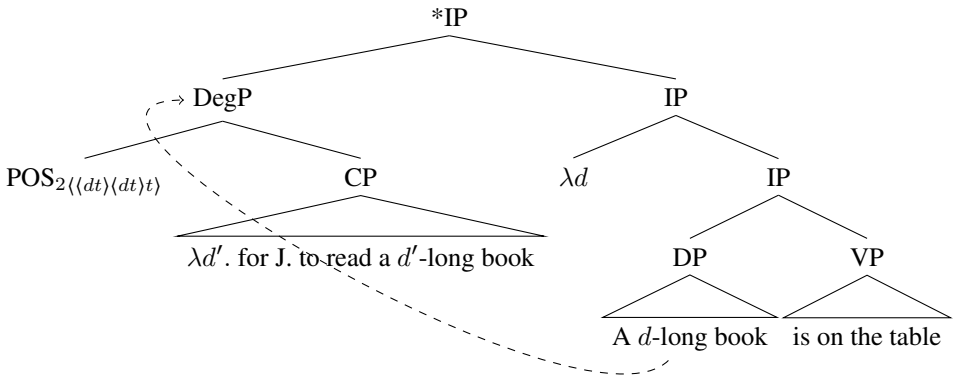
Let me illustrate the problematic structures for a comparative construction involving an island precluding the comparative morpheme to QR – and a parallel structure for the AIC. I will use subject islands for illustration. The sentence in (81-a) will have the following structure – the movement that DegP has to undergo is impossible because the DP it needs to move out of is a subject, and thus an island for movement:

- (82) *[A taller man than John (is)] entered the room.



Similarly, the AIC reading cannot be derived if the attributive adjective is part of the subject DP. As discussed in the previous section, in this configuration the sentence does not have the ‘inappropriateness’ or *too*-reading, which I take to indicate that the following structure is not available – again, because the DegP cannot move out of the subject DP:

(83) A long book for John to read is on the table. ≠ *too*



Thus, for the island constraint data the analysis I argue for gives the right result.

The gap

Another property of the AIC discussed in the previous section is the obligatory gap in the infinitival clause:

(84) *‘War and Peace’ is a long book to assign it / a (long) book.

I hypothesise that this gap is a result of an ellipsis operation very similar to Comparative Deletion – the term coined by Bresnan (1973, 1975) to describe constructions in which an adjectival, adverbial, or nominal constituent is elided in the complement of *than* or *as*, as illustrated below for DPs in the complement of *than* (Bresnan, 1973, 1975; Williams, 1977; von Stechow, 1984; Heim, 1985; Kennedy, 1997; Lechner, 1999; Kennedy and Merchant, 2000, a.m.o.):

- (85) a. Fred reads more books [*than* Susan buys *__*].
 b. John saw a longer whale [*than* *__* was ever seen]. (Sauerland, 2000)

The gaps in (85) presumably result from the deletion of DPs identical to a DP in the matrix clause:⁷

- (86) a. [MORE [λd *than* Susan buys \langle ~~*d*-many books~~ \rangle]
 [$\lambda d'$ Fred reads *d'*-many books]]
 b. [MORE [λd *than* \langle ~~*a d*-long whale~~ \rangle was ever seen]
 [$\lambda d'$ John saw *a d'*-long whale]]

Bresnan (1973, 1975); Lechner (1999) show that one of the defining properties of Comparative Deletion is its obligatoriness. The silent copies of the DPs in (86-a) and (86-b) cannot be pronounced:

- (87) a. *Fred reads more books than Susan reads them / books / many books.
 b. *John saw a longer whale than it / a whale / a long whale was ever seen.

The gap is obligatory in AICs as well, as shown above in (84). Obligatoriness of Comparative Deletion is quite a puzzling property, as in general ellipsis is an optional process. The obligatoriness of the ellipsis operation is basically not found outside of degree constructions (though see Sauerland 2000, where an operation of Relative Deletion is proposed for the matching structures of restrictive relative clauses – an operation that is very similar to Comparative Deletion in several respects, including its non-optionality). This chapter is not the right place to go into the potential reasons for this strange behaviour of Comparative Deletion – or for the doubts about the deletion analysis of these constructions. All I point out here is the parallel between the Comparative Deletion in comparative (and equative) constructions and in the AIC,

⁷The reader might notice that in the structure in (86-b) corresponding to the example form (Sauerland, 2000), the elided DP containing a gradable adjective is in the subject position of the *than*-clause. As discussed above, subject DPs are islands for movement. At the same time, as I have shown above as well, relating to the literature on the topic, the *than*-clause involves movement of the *wh*-operator from the base position to form a predicate over degrees. The relevant example involving a complex NP island is repeated here:

- (i) a. *John is taller than he knows a boy [who is *__*].
 b. *How tall does John know a boy [who is *__*] ?

How is it possible to extract the *wh*-operator out of the subject DP in (86-b) without producing an ungrammatical sentence? I hypothesise that the constraint is lifted when the whole island constituent is elided – exactly as in Sauerland's example. I refer the reader to the relevant discussion in (Kennedy and Merchant, 2000).

which is naturally captured by the analysis I develop here. Also note that the ellipsis in the AICs is related to the property of island sensitivity discussed right above – both properties have to do with DegP movement.

NPI licensing

A further parallel between the AIC and the comparative construction is NPI licensing in the subordinate clause – *than*-clause in the case of comparative construction and the infinitival clause in the case of the AIC. Recall from the previous section that NPIs are licensed in the AIC, which has served as one of the counterarguments against the relative clause analysis of the AIC:

(88) ‘War and Peace’ is a ***(long)** book [for **anybody to ever** read].

The standard clauses in comparative constructions are known to license NPIs as well (Hoeksema, 1983; von Stechow, 1984; Heim, 2006, a.m.o.):

(89) ‘War and Peace’ is longer [than **any** book you would **ever** want to read].

This is not a unique property of *than*-clauses that the AIC infinitival clause just happens to share. Rather, this is a property of ‘standard clauses’ in general, which has been documented at least for the complements of the superlative *-est* (Krifka, 1991; Bhatt, 2002; Howard, 2008, 2013; Bhatt and Pancheva, 2012) and for the complements of *too* (Krifka, 1991; von Stechow, 1984):

(90) a. This is the **longest** book I have **ever** read.
b. This is the **most** interesting book to **ever** appear on this topic.

(91) This book is **too** long for **anybody to ever** read.

I will only talk about NPIs in comparatives when I discuss the parallel between the AIC infinitival clauses and the standard clauses, as NPI licensing phenomena in comparatives is the most studied so far.

Still, it is not entirely clear why NPIs are licensed in the comparative construction. Different theories of NPI licensing have different potential answers to this question. Syntactic theories that appeal to a particular configuration between the licenser and the NPI have a strict structural requirement on how the standard clause has to look for the NPIs to be licensed in it – in particular, the NPI has to be c-commanded by negation. This is exactly what has very often been claimed for comparative constructions. According to this idea (that can be traced back at least to Jespersen 1917), there is a silent negation in the standard clause – which would account for the NPI facts quite straightforwardly (see also Ross 1969; McConnell-Ginet 1973; Seuren 1973; Klein 1980; Heim 2006, a.m.o.):

(92) John is taller than Mary is.
means ‘John is tall to some degree to which Mary isn’t tall’
Ed John is *d*-tall & NOT Mary is *d*-tall.

There were debates in the recent literature on how adequately this analysis captures the known properties of *than*-clauses, and overall this kind of analysis has proved to be a very promising one (Heim, 2006; Gajewski, 2008; Schwarzschild, 2008). One remaining problem with this analysis is that it does not predict that only weak NPIs can appear in *than*-clauses – as this analysis stands, strong NPIs (the ones that only appear under negation and are not subject to ‘rescuing’ – a ‘last resort’ reinterpretation in the lack of a licenser) are also predicted by the analysis in (92) to appear in the *than*-clause, but in fact they do not (see Giannakidou and Yoon 2010 for the discussion and for more data). The same holds of the AIC:

- (93) a. John didn’t see Bill, either.
 b. *Did John see Bill, either?
 c. *If you see Bill either, ...
- (94) a. *John is taller than Bill (is) either.
 b. *‘War and Peace’ is a long book to assign either.

Compare the properties of *either* in (94) to the properties of a weak NPI *any* that appears in all of these environments:

- (95) a. John didn’t see anybody.
 b. Did John see anybody?
 c. If you see anybody, ...

The semantic theories that view the entailment patterns as a licensing condition for NPIs cannot straightforwardly account for the NPIs in AICs either. The most prominent semantic hypothesis of NPI distribution is the Fauconnier/Ladusaw Hypothesis that states that NPIs appear in the environments that satisfy Downward Entailment (or implication reversal), which is illustrated in (96-b) contrasted with a non-NPI licensing context in (96-a) (Fauconnier, 1975; Ladusaw, 1979):

- (96) a. John is **a sheep farmer** → John is **a farmer**.
 b. Nobody here is **a farmer** → Nobody here is **a sheep farmer**.

Downward Entailment in the case of a comparative construction would amount to the following entailment pattern (Heim, 2006):

- (97) Downward Entailment in Comparatives:
 If $\exists d [d \in Q \ \&\neg d \in P]$ and $P' \subseteq P$, then $\exists d [d \in Q \ \&\neg d \in P']$

The claim that (97) characterizes comparative constructions and thus comparative constructions are a Downward Entailing environment with respect to the standard clause were made, most famously, in (Hoeksema, 1983) with examples of the following kind:

- (98) John is taller than **Tom and Sam** → John is taller than **Tom**.
 → John is taller than **Sam**.

The examples with conjunction are not the best way to show downward-entailment, as the same pattern holds in a simple upward-monotonic episodic environment:

- (99) John saw **Tom and Sam** → John saw **Tom**.
 → John saw **Sam**.

It has also been shown by (Larson, 1988; Schwarzschild and Wilkinson, 2002) that the downward-entailing schema is not (always) validated in the comparative. There are cases when the comparative supports upward entailment:

- (100) a. John is taller than **some professional athletes** are. →
 b. John is taller than **some professional basketball players** are.
- (101) a. John is taller than **some professional basketball players** are. →
 b. John is taller than **some professional athletes** are.

There seems to be no consensus regarding the entailment properties of the comparative constructions so far – the state of the art being that comparatives are not inherently monotonic at all, the entailment properties being dependent on the quantifier the standard clause contains (Rullmann, 1995; Hendriks, 1995; Heim, 2006). I am not aiming to solve the puzzle of NPIs in *than*-clauses here, but I want to point out that all the properties of the comparative constructions with respect to entailment patterns hold for AICs as well:

- (102) a. ‘War and Peace is a long book for **Tom and Sam** to read in one day.
 → ‘W&P’ is a long book for **Tom** to read in one day.
 → ‘W&P’ is a long book for **Sam** to read in one day.
- (103) a. ‘W&P’ is a long book for **some PhD students** to read in one day.
 → ‘W&P’ is a long book for **some PhD students in linguistics** to read in one day.
 b. ‘W&P’ is a long book for **some PhD students in linguistics** to read in one day.
 → ‘W&P’ is a long book for **some PhD students** to read in one day.

Thus, whatever accounts for these properties in comparatives would work for the AIC, my observation being that the AIC and the comparatives share these properties. This is predicted by my analysis assigning basically the same structure and semantics to the comparative construction and to the AIC.

Modal force

Finally, recall from the previous section that the AIC lacks the *CAN / MUST* ambiguity that would be expected under a regular relative clause analysis, but, as the example below shows, the expected reading is not there:

- (104) War and Peace is a **long book** for John to read in one day.
 = The length of W&P exceeds the length a book *CAN / MAY* have given a purpose of John reading it in one day.
 ≠ The length of W&P exceeds the length a book *MUST / HAS TO* have given a purpose of John reading it in one day.

The observation made in (Hackl and Nissenbaum, 2012) relates the CAN reading to the reconstruction of the head NP into the gap position inside the infinitival clause. When an anti-reconstruction environment is enforced, the CAN-reading disappears, and reemerges in a reconstruction environment:

- (105) a. There are many [books about **John_i**] for **him_i** to read.
(= MUST, *CAN)
b. There are many [books about **him**] for **John** to read.
(CAN reading available)

The dependency between the interpretation of the material inside the infinitival clause and the existential modal force is observed in my analysis as well – I propose that in the AIC the gap has material that needs to be interpreted inside the infinitival clause, and the observed modal force of the infinitival clause is existential only, quite as expected.

To wrap up, the analysis involving a 2-place POS as presented here covers a wide range of data that would otherwise remain puzzling – especially, island sensitivity and ellipsis in the infinitival clause. Treating the infinitival clause as a standard-denoting expression similar to *than*-clauses explains some otherwise unexpected parallels between *than*-clauses and infinitival clauses in the AIC – in particular, NPI licensing facts, the syntactic distribution of these clauses, as well as the acceptability of low degree modifiers (more on this below).

3.5 Extendability to ‘functional standard’ construction

3.5.1 The construction

One of the two constructions that were introduced at the beginning of the chapter was the ‘functional standard’ (FS) construction, shown here again in (106):

- (106) a. ‘War and Peace’ is slightly long [to read in one week].
b. John is a bit tall [to drive this car].

The defining properties of this construction that distinguish it from the AIC are the predicative position of the gradable adjective (unlike in the AIC, where the adjective is in the attributive position) and a low degree modifier that very often accompanies the adjective – in fact, the low degree modifier is obligatory for many speakers:

- (107) a. ?‘War and Peace’ is long [to read in one week].
b. ?John is tall [to drive this car].

In the AIC the low degree modifiers are acceptable, but totally optional (Fleisher, 2008, 2011; O’Connor, 2012):

- (108) a. ‘War and Peace’ is a (**slightly**) long book [to read in one week].
b. John is a (**somewhat**) short guy [for the Lakers to draft].

The term ‘functional standard’ comes from (Kagan and Alexejenko, 2010), who use it for certain uses of the Russian degree modifying adjectival suffix *-ovat*. The following is their key example:

- (109) Takije kabluki dlja menja vysok-**ovat**-y.
 such heels for me high-**ovat**-PL.NOM
 ‘Such heels are somewhat too high for me’

Kagan and Alexejenko (2010) treat the FS reading as a peculiarity of lexical semantics of *-ovat*, but it is clear from the discussion in this chapter that these readings are a much more general phenomenon. In particular, the same kind of reading arises in AICs where low degree modifiers are totally optional, as well as in a FS construction without a low degree modifier for those speakers who don’t have to have them in the FS construction (those speakers typically make use of a heavy intonation on the adjective or some other way to facilitate the FS reading – I return to this later on).

3.5.2 The need for a different analysis

Does the analysis of the AIC I have developed above extend to the FS construction? On the one hand, considerations of uniformity suggest a parallel solution for the FS case – with the gradable predicate interpreted inside the infinitival clause in the position of the obligatory gap and then somehow elided under identity with the gradable predicate in the matrix clause:

- (110) a. This book is (a bit) long for John to read (*it) in one day.
 b. \llbracket for John to read ~~long~~ x in one day $\rrbracket =$
 $\lambda d. \diamond$ John reads [d -long x] in one day

Clearly, this analysis is problematic for the FS construction. First, the structure with the AdjP reconstructed in the infinitival clause gap comes out syntactically ill-formed – the gap in the infinitival clause is a DP and not an AdjP. Second, the somewhat degraded status of the FS sentences without a low degree modifier would be a mystery – low degree modifiers are completely optional (though possible) in AICs, as shown in (108).

These two facts suggest a different solution for the structure and semantics of FS constructions, though the result comes out very similar.

The first fact makes the ellipsis analysis highly questionable, and the status of the gap in the FS infinitival clause probably has to be different. The solution I offer is to allow the infinitival clause to be much more similar to the head-external analysis of relative clauses after all than my analysis suggests for AIC infinitives. Instead of ellipsis, I propose operator movement from the object position: Op_i for John to read t_i in one day. The operator Op_i moves out of its base DP position inside the relative clause, leaving a trace of type e behind, and causing lambda-abstraction over the individual variable right below its landing site. The infinitival clause will then be of type $\langle et \rangle$ (\approx the set of books that are good for John to read in one day), as Fleisher originally proposes for infinitival clauses in the AIC.

Let us now take a closer look at the second fact – the special role low degree modifiers play in the FS construction. This discussion will help me clarify the role of this infinitival clause of type *<et>* in the FS construction and will lead me to a POS-coercion analysis of the FS construction.

3.5.3 Low degrees and inappropriateness: a coercion analysis

There is substantial literature on the semantics of degree modifiers and how it interacts with different kinds of standards that gradable adjectives in the positive form make use of. I addressed this interaction quickly in section 3.2.2, but let me now elaborate on it in a little bit more detail.

The distinction between so-called absolute gradable adjectives such as *closed* and relative gradable adjectives such as *tall* is important in this respect. According to many studies (Rotstein and Winter, 2004; Kennedy and McNally, 2005; Kennedy, 2007; Sassoon and Toledo, 2011; McNally, 2011, a.o.), absolute and relative adjectives differ in their compatibility with different degree modifiers:

- (111) a. ??perfectly / ??slightly {tall, deep, expensive, likely}
 b. ??perfectly / ??slightly {short, shallow, inexpensive, unlikely}
- (112) a. ??perfectly / slightly {bent, bumpy, dirty, worried}
 b. perfectly / ??slightly {straight, flat, clean, unworried}
- (113) a. perfectly / ??slightly {certain, safe, pure, accurate}
 b. ??perfectly / slightly {uncertain, dangerous, impure, inaccurate}
- (114) a. perfectly / slightly {full, open, opaque}
 b. perfectly / slightly {empty, closed, transparent}

These patterns of degree modification were given an explanation in terms of differences in the structure of scales encoded by gradable adjectives (Kennedy and McNally, 2005; Kennedy, 2007):

(TOTALLY) OPEN:	○————○
LOWER CLOSED:	●————○
UPPER CLOSED:	○————●
(TOTALLY) CLOSED:	●————●

In the terminology introduced in (Kennedy and McNally, 2005), relative adjectives lexicalize a totally open scale, while absolute adjectives lexicalize scales that have at least one closed end – and low degree modifiers are compatible with scales having a closed lower end.

Kennedy (2007) connects the type of the scale and the type of the standard the adjective makes use of in the positive form with the help of a general principle of interpretation that would ensure that the conventionally determined standard (maximal or minimal) will be preferred over a contextually determined standard when the adjective's scale is closed (Kennedy, 2007, p. 36):

- (115) **Interpretive Economy:** Maximize the contribution of the conventional meanings of the elements of a sentence to the computation of its truth conditions.

The principle ensures that the conventionally determined standard will be preferred over a contextually determined standard when an adjectival scale is closed. For relative adjectives, there will be no conventionally provided degree to serve as a standard, and the standard has to be chosen contextually.

There are complications to this picture and alternative views on what the requirements of low degree modifiers are – low degree modifiers like *slightly* or *a bit* were argued to be sensitive to how precise the standard is rather than to whether the gradable adjective encodes a scale closed at the lower end (McNally, 2011; Solt, 2012; Bylinina, 2012, a.o.). The reason for the apparent incompatibility of low degree modifiers like *slightly* or *a bit* and relative adjectives is that low degree modifiers involve reasoning about small differences between the standard and the subject – and the vagueness of the contextual standard makes these precise comparisons problematic.

The fact that the standard in the positive construction with relative adjectives is vague or indeterminate is very well known (and constitutes a starting point of this dissertation). This vagueness of the standard, according to the analyses in (McNally, 2011; Solt, 2012; Bylinina, 2012) precludes reasoning about small differences between the standard and degrees surrounding it. Low degree modifiers, on the other hand, lexicalize precisely the small difference between the standard and the subject. Thus when a low degree modifier is used with a relative gradable adjective, certain interpretational effects are observed (Solt, 2012; Sassoon, 2012; Bylinina, 2012).

This view – unlike the ‘classic’ one found in (Rotstein and Winter, 2004; Kennedy and McNally, 2005) – would predict that the combinations of relative adjectives and low degree modifiers should be available if a standard is more precisely specified. This prediction is borne out – relative adjectives can indeed be modified by *slightly* or *a bit* (contrary to the ‘??’ judgement in the classic work cited above), but this combination gives rise to certain interpretational effects:

- (116) #slightly / a bit tall / long / short / wide... (Solt, 2012; Bylinina, 2012)

The most prominent interpretation this combination gets is precisely the ‘inappropriateness’ reading (exceeding the maximal degree compatible with a purpose) that I was interested in throughout this chapter. By hypothesis, the standard that positive relative adjectives make use of in (116) is somehow made ‘precise enough’ for the low degree modifier to be able to combine with the positive form of the relative adjective.

How does this precisification happen? I suggest that the locus of this change is the point where the standard of comparison enters the picture. Usually, the standard in the positive construction is calculated as part of the semantics of the positive morpheme POS on the basis of the gradable predicate G and the comparison class C that is supplied as an argument of POS (Bartsch and Vennemann, 1973; Solt, 2011):

- (117) $[[\text{POS}]] = \lambda C_{\langle et \rangle} \lambda G_{\langle d, et \rangle} \lambda x. \max(\lambda d. G(d)(x)) > \mathbf{norm}(G)(C)$
 where \mathbf{norm} is a standard-calculating function

I propose that in case of the FS construction, the comparison class gets existentially quantified over as a result of coercion of the meaning of the positive morpheme POS. This reduces the vagueness that is inherent in the usual denotation of the POS morpheme and allows for selection of a more precise degree that would serve as a standard for POS and would at the same time satisfy the requirements of the low degree modifier (reasoning about the small differences). I suggest that the following interpretation of POS (POS') is available in at least some special cases, as a 'last resort':

$$(118) \quad \llbracket \text{POS}' \rrbracket = \lambda C_{\langle et \rangle} \lambda G_{\langle d, et \rangle} \lambda x. \mathbf{max}(\lambda d. G(d)(x)) > \mathbf{norm}(\lambda d'. \exists y \in C : G(d')(y))$$

In (118), $C_{\langle et \rangle}$ stands for the set of individuals that can be either introduced by context, or by some overt element – for example, the infinitival clause of type $\langle et \rangle$, which is exactly the type of the infinitival clause I have argued for above in the FS construction.

The standard-calculating function **norm** returns a standard that is prominent in a range that is provided by its input (see the discussion of the Interpretive Economy principle). In the case of the existentially quantified comparison class, as above, the salient point in the range would naturally be the maximum point, and this point will serve as a standard of comparison. Thus (118) will end up as equivalent to (119):

$$(119) \quad \llbracket \text{POS}' \rrbracket = \lambda C_{\langle et \rangle} \lambda G_{\langle d, et \rangle} \lambda x. \mathbf{max}(\lambda d. G(d)(x)) > \mathbf{max}(\lambda d'. \exists y \in C : G(d')(y))$$

(119) says that the maximum degree that is attested among the members of the set is picked as a standard for POS'.

A potential problem for this analysis is that if this POS' is available in the FS construction, it should be available for the AIC as well, allowing for a local composition without DegP movement – then why does the AIC show island constraints and reconstruction effects? The reason would be that POS' is only available as a 'last resort' in cases when the usual interpretation for POS is ruled out (in the case of FS, by the low degree modifier that is incompatible with the regular interpretation of relative gradable adjectives).

Why do I go for a coercion of POS analysis of the FS construction? Let us have a quick look at potential alternatives. One alternative to coercing POS would be to locate the 'inappropriateness' semantics of the FS construction in the low degree modifier. There are two reasons not to do so. First, low degree modifiers are not strictly obligatory in the FS constructions for quite many speakers, so I would say that they signal the coercion rather than strictly speaking introducing the 'inappropriateness' meaning. Second, it's not the case that all occurrences of low degree modifiers bring in 'inappropriateness' – with classic lower-bound gradable adjectives such as *bent* they just signal that there is a non-zero degree of bentness of a certain object. Thus I reject this alternative.

One more alternative would be to postulate coercion of the meaning of the adjective itself rather than that of the positive morpheme. Indeed, the interpretational effect in question could be treated as an instance of ambiguity of gradable predicates between relative and absolute interpretations. While absolute adjectives are known to

have relative uses available systematically (Kennedy, 1997; Kennedy and McNally, 2005),⁸ the opposite – relative adjectives appearing with absolute-like interpretation – has not been documented before. I think this analysis is a viable option, and I consider it in (Bylina, 2012). I address the reader to that paper for more details.

One remaining question is why in the FS construction and in simple combinations of low degree modifiers with relative adjectives (without the infinitive) we find the 'exceed' ('inappropriateness', *too*) reading rather than the 'suffice' (*enough*) reading. In other words, why does the maximal point compatible with a purpose get picked as a standard rather than the minimal point. One more way of rephrasing the question is why we have existential rather than universal quantification over the members of the comparison class members in the coerced POS' (recall the discussion in section 3.2.2 on how modal force and maximum/minimum are related). A potential answer is that existential quantification might be considered as a default 'last resort' mechanism in language, while universal quantification is 'marked' in this respect. A thorough study of asymmetries between existential and universal quantification in natural language is beyond the scope of this chapter and dissertation (as one example, consider 'existential closure' and the lack of a corresponding 'universal closure' mechanism⁹), but I believe that it is a viable route to take in explaining the interval point that gets picked as the standard in the FS construction.

As a related fact, I want to mention the connotations of low degree modifiers. An intuition (supported by a corpus study Bylina and Zadorozhny 2012) is that, all other parameters being equal, low degree modifiers combine much more naturally with adjectives with negative connotation rather than with the positive ones:

- (120) a. Clyde is slightly stupid / lazy.
b. (?)Clyde is slightly smart / industrious.

This preference is, by hypothesis, rooted in laws of politeness. In particular, the maxim in play has to be something like the Approbation maxim proposed in (Leech, 1983):

- (121) **The Approbation maxim**
Minimize the expression of beliefs which express dispraise of other; [maximize the expression of beliefs which express approval of other].

One way to soften a dispraising statement is to understate the degree to which the negative property holds.

It would be interesting to find out if these 'negative connotation' effects are in some way related to the role of low degree modifiers in the 'inappropriateness' constructions such as the FS construction. At this point I cannot answer this question.

⁸As an example, *dry* is a typical absolute adjective, but one can set up a context in such a way that a relative reading would be available, arguably, when *dry* is used to describe a permanent, stable property such as the average degree of moisture in the atmosphere, as in *The glasses are dry* vs. *This region of the country is dry*. For further discussion see (Kennedy and McNally, 2005, 6.2).

⁹Barbara Partee (p.c.) suggests that a more natural possibility would be 'generic closure'. Unfortunately, I don't have much to say on this now.

3.5.4 Cross-linguistic support

As a further support for the different analyses of the AIC and the FS construction and a ‘coercion’ analysis of the FS construction, consider some cross-linguistic data. The striking fact about the AIC is that it is extremely rare cross-linguistically. In fact, English is the only language I know so far that has this construction. A systematic cross-linguistic study is needed to find out the factors affecting the availability of the AIC and other infinitival constructions, but here are some preliminary observations.

Languages differ in the roles the infinitival clauses can play in the sentence and the structural positions they can occupy. One extremely impoverished case would be a language that lacks the infinitival clauses altogether. This kind of language – even though it could be argued to exist given the unclear status of certain verbal forms in many languages and the varying definitions of what the infinitive is – is not of a particular interest for me now, as I am interested in finding a language that would draw a line between the two infinitival constructions that are the focus of my study. The other extreme – a very rich system – is found in English, which uses infinitival clauses as clausal arguments of certain verbs (*start*, *want*, etc.) (122-a-b), as VP- or clause-level adjuncts (purpose clauses, rationale clauses, etc. – see Nissenbaum 2005 and references therein) (122-c-d), as NP-adjuncts (infinitival relative clauses) (122-e), and – most importantly – in the FS construction (122-f), and in the AIC (122-g).

- (122)
- | | | |
|----|---|------------------|
| a. | John started [to smoke] when he was 20. | ARGUMENT |
| b. | John wants Mary [to quit smoking]. | ARGUMENT |
| c. | John brought his cat here [for me to admire __]. | PURPOSE CLAUSE |
| d. | John brought his cat here [for me to admire it]. | RATIONALE CLAUSE |
| e. | This is a book [to read __ in one day]. | RELATIVE CLAUSE |
| f. | This is a long book [for John to read __ in one day]. | AIC |
| g. | This book is a bit long [for John to read __ in one day]. | FS |

One could see the cross-linguistic variability outlined here as a scale of how widespread the infinitival clauses are across constructions in a given language. I am interested in the point on this scale that would show the difference between the AIC and the FS construction. In particular, if there is a language such that it has one of the two constructions, but not the other one, it would serve as a further argument in favour of different analyses of the two constructions. In fact, precisely this combination can be easily found within European languages. Two examples I show here are French and Dutch.¹⁰ Both languages – quite like English – possess the usual inventory of argumental and NP-, VP-, or clausal adjunct infinitival clauses, illustrated here with the infinitival relative clauses:

- (123) C’est un livre à lire en un jour. FRENCH
 this.is a book to read in one day

¹⁰I thank Maartje Schulpen, Rick Nouwen and Jenny Doetjes for discussing the Dutch facts with me. As Jenny Doetjes (p.c.) has pointed out to me, however, the Dutch facts are not as simple as I make them look here. The status of *voor* ‘for’ as a complementizer in infinitival clauses is highly questionable (Bennis and Hoekstra, 1989). Unfortunately, I don’t have much to say about this issue here. The French data are due to Margot Colinet and Guillaume Thomas.

'This is a book to read in one day'

- (124) Er zijn veel problemen voor ons om op te lossen. DUTCH
 there is many problems for us to solve
 'There are many problems for us to solve'

At the same time, both languages seem to lack the AIC construction altogether (in French, neither postnominal nor prenominal position of the adjective works):

- (125) a. #C'est un long livre à lire en un jour. FRENCH
 this.is a long book to read in one day
 Intended 'This is a long book to read in one day'
 b. #C'est un livre long à lire en un jour.
 this.is a book long to read in one day
 Intended 'This is a long book to read in one day'
- (126) #Dit is een dik boek om in één dag te lezen voor Maartje DUTCH
 this is a thick book to in one day to read for Maartje
 Intended: 'This is a long book for Maartje to read in one day'

The sentences in (126) and (125) are not ungrammatical, they just fail to have the 'inappropriateness' reading that is characteristic of the AIC. The only reading these sentences have is the regular positive + infinitival relative clause reading, according to which the book has to or may be read in one day, and it is a long book. The above sentences are fine with *too* and are significantly improved by a low degree modifier:

- (127) C'est un livre {**trop/ ?un peu**} long à lire en un jour. FRENCH
 this.is a book **too/ a bit** long to read in one day
 'This is a slightly long book to read in one day'
 'This is a too long book to read in one day'
- (128) Dit is een **te** dik boek om in één dag te lezen voor Maartje DUTCH
 this is a **too** thick book to in one day to read for Maartje
 'This is too long a book for Maartje to read in one day'
- (129) Dit is een **beetje** een dik boek om in één dag te lezen voor Maartje
 this is a **bit** a thick book to in one day to read for Maartje
 'This is a slightly long book for Maartje to read in one day'

The FS standard construction is fine in both languages (a low degree modifier required for most speakers):

- (130) Ce livre est un peu long à lire en un jour. FRENCH
 this book is a bit long to read in one day
 'This book is a bit long to read in one day'
- (131) Dit boek is een beetje dik om in één dag te lezen DUTCH
 this book is a bit thick to in one day to read
 'This book is a bit long to read in one day'

The conclusion that I draw from these data is the following: the ‘inappropriateness’ reading that arises from the combination of the infinitival clause and the positive form of a gradable adjective can potentially be derived in two different ways: the first way involves ‘coercion’ of the positive morpheme to accommodate the infinitival comparison class, while the other one involves a ‘degree’ interpretation of the infinitival clause directly serving as a standard for the positive morpheme. Some languages allow for both of these ways (English), while others – only for one of them (French and Dutch). In case only one of these ways is used in a language, one would expect it to be the FS-like one with the coercion of the positive morpheme rather than the ‘degree infinitival’ one. The reason is that the semantics that the infinitival clause has in the FS construction (type $\langle et \rangle$) is found outside of this construction as well – it is a type that the infinitival clauses have in their regular adjunct uses and probably some argumental uses as well (see section 3.3 on the semantics of relative clauses and Nissenbaum 2005 and references therein on purpose clauses). The coercion that the positive morpheme undergoes in this construction is also quite general, involving default last resort strategies such as existential quantification. On the other hand, the $\langle dt \rangle$ semantic type of the infinitival clause is not, to my knowledge, found outside of the AIC, and this semantic type for the infinitival clause might be blocked in certain languages (for reasons I can only speculate about). It is also not clear how easily available the 2-place quantificational POS I propose for the AIC is across languages and constructions – something I return to in the next section.

3.5.5 Summing up the section

I have given different analyses to the two degree constructions with an ‘inappropriateness’ reading with an infinitival clause. On the one hand, it seems like a rather counter-intuitive thing to do given the striking surface and semantic similarities between the two constructions. However, I have shown that directly extending the AIC analysis to the FS construction wouldn’t work. At the same time, looking more carefully at the differences between the two constructions, I have concluded that the unified analysis of the two constructions might not be desirable – there is something fundamentally different between the statuses of these two constructions in English and cross-linguistically. While the AIC is with absolutely no doubt accepted by all the speakers with neutral intonation and without any supplementary emphatic items, the FS construction somehow requires some effort to build and interpret (it has even been claimed to not exist in English – see O’Connor 2012) – and for many speakers needs an item that would rule out the default interpretation of the relative adjective. This item is usually a low degree modifier. For me it signals that a ‘coercion’ process is part of what is going on in the FS construction – unlike in the AIC. The analyses I present here are built to capture this difference.

3.6 Discussion

3.6.1 POS as a quantificational element

One of the contributions of this chapter (along with describing the peculiar properties of the rather peculiar attributive-with-infinitive construction) is the motivation of the semantics of a positive morpheme POS that makes it a quantificational element, with its own scopal properties that can be indirectly visible given the right environment. The idea that POS is present in the structure of the positive construction with gradable adjectives is still a controversial issue, and there are debates as to whether such an element is needed at all (for a recent discussion see Sassoon and van Rooij 2012). However, my data on the AIC shows that even though this element is not overt, it shares the quantificational behaviour of overt degree quantifiers such as the comparative morpheme. Thus one has to have it in the structure.

The same conclusion is reached by O'Connor (2012). She observes that POS, quite like other quantificational elements, has a systematic blocking effect on other moving elements, the effect that has been called 'weak adjectival islands' (Hendrick, 2007). The examples she discusses include the movement of a comparative morpheme (132) and *wh*-movement:

- (132) a. *I bought a POS-tall rounder vase (than Bill).
 b. I bought a taller round vase (than Bill).
- (133) a. It was hard to seem amused. (Hendrick, 2007)
 b. How hard was it *t* to seem amused?
 c. *How amused was it POS-hard to seem *t*?

These observations seem to be in line with the conclusion I make about the quantificational nature of POS. However, it is not clear if the 2-place quantificational semantics for POS should be used in sentences like (133) or (132). One could try to make the statement that this 2-place semantics is **the** semantics of a positive morpheme in English, which would explain the weak adjectival islands illustrated above. However, this view would face a number of difficulties, as the standard denotation for POS is still needed to cover a number of cases (comparison class constructions, etc.). Moreover, if a 2-place POS was attested in the bare uses of positive gradable adjectives without a degree complement, DegP would have to move out of its base position to get interpreted, and the positive gradable adjectives would be ungrammatical inside syntactic islands even when without a degree complement clause. But this is not in fact observed:

- (134) a. [A long book (#to assign)] is on the table. SUBJECT ISLAND
 b. I took [the long book (#to assign)]. DEFINITE DP

There is a caveat, though: bare comparatives (without an overt standard clause) lose island-sensitivity in a way totally parallel to POS:

- (135) a. [A taller man (*than John is)] entered the room. SUBJECT ISLAND

- b. I bought [the more expensive ring (*than John did)]. DEFINITE DP

It is not entirely clear what the right analysis for (135) should be, but whatever it is, it has to hold for (134), as well.

There are other cases where POS has been argued to move out of its base position. (Schwarz, 2010) gives an analysis of (136) in terms of a ‘scoping POS’ morpheme, which allows for a derived gradable predicate that would satisfy the usual definition of a comparison class *for*-phrase construction:

- (136) Mia POS [λd [has a [d expensive] hat] [for a 3-year old]].

However, it is not clear if the nature of this movement is the same as the movement observed in the AIC. Under Schwarz’s analysis, POS doesn’t move out for type reasons – it can be interpreted in situ, as it combines directly with a gradable predicate of type $\langle d, et \rangle$ (though it is a derived one in (136)) and the subject individual – I leave the details of the comparison class interpretation aside here and return to them in the next chapter. Clearly, this movement happens for a different reason and is totally independent from the point I am making in this chapter. To get a better understanding of the compatibility of Schwarz’s analysis of examples like (136) with the 2-place POS I propose here, more work is needed.

Summing up, more work needs to be done to systematically test the quantificational properties of POS. This chapter can be taken as one step in the direction of this goal.

3.6.2 The *too*-construction

The semantics of the AIC and the FS construction discussed in this chapter suggest a very strong parallel between these constructions and the *too*-construction, illustrated below:

- (137) a. ‘War and Peace’ is a long book to assign.
 b. ‘War and Peace’ is too long a book to assign.
- (138) a. John is a bit tall to drive this car.
 b. John is a bit too tall to drive this car.

In section 3.2.1 I have shown that there are some differences between *too* and the constructions I am concerned with in this chapter. Let’s look at these differences in turn and see how these differences should be accounted for.

First, the gap is obligatory in the infinitival clause in the AIC, while only optional in the *too*-construction:

- (139) a. *Middlemarch is a long book to assign it.
 b. Middlemarch is *too* long a book to assign it.

What does this imply for the analysis of *too* and the kind of an argument it takes? Does it mean that *too* is actually ambiguous between two lexical entries depending on the type of the argument it takes – the one that takes a full infinitival clause as its

argument and the other one that takes a gapped infinitival clause? Nissenbaum and Schwarz (2009, 2011) – the only systematic study of the status of the optional gap in the infinitival complement of *too* – argue that the answer to this question is no. They observe that the properties of the gapped infinitival clause are surprisingly reminiscent of the properties of the so-called parasitic gaps and propose the analysis of the gap in the *too* complement along these lines.

Parasitic gaps can be illustrated with the following example from (Nissenbaum, 2000):

(140) this article, which [λx [we filed x] λy [without reading y]]

In (140), according to the analysis in (Nissenbaum, 2000), the parasitic gap in the constituent *without reading* involves null operator movement that derives a predicate. *Wh*-movement in the matrix clause also creates a predicate – then these two independently derived predicates conjoin by generalised conjunction. Thus the possibility of attaching a phrase with a parasitic gap is dependent on the movement (and thus, creation of the predicate) in the matrix clause. In this sense, the gap in the adjunct is ‘parasitic’ on the process in the matrix clause. The same can be observed for the obviation of the Faraci generalisation.

Faraci (1974) makes an observation that a non-subject gap in the infinitival clause with *too* must be anaphoric to the subject of the adjectival phrase that *too* is in construction with:

(141) a. Berlin is too cold [for us to travel to _].
b. *It’s too cold in Berlin [for us to travel to _].

However, (142) shows that this requirement is lifted in the case of overt *wh*-movement in the main clause:

(142) [Which city]_{*i*} is too cold in t_i [for us to travel to _].

The contrast between (141-b) and (142) is parallel to the contrast in (143) with canonic parasitic gaps:

(143) a. *He traveled to Berlin [to take pictures of _].
b. [Which city]_{*i*} did he travel to t_i [to take pictures of _].

Details and further arguments omitted here, Nissenbaum and Schwarz (2009, 2011) propose a unified analysis for *too* with a gapped and a non-gapped infinitival complement – the gapped one derived from the non-gapped one by the parasitic operator movement and lambda-abstraction above *too*, so that *too* always takes a complement without an open individual slot:

(144) Berlin is λx [too [for us to travel to x]] cold.

This picture is very different from what we find in the AIC and the FS construction, given the obligatoriness of the gap in the infinitival clause, suggesting a different analysis.

One further issue concerns the implicative properties of the *too*-construction (Karttunen, 1971; Hacquard, 2006), that the AIC and the FS construction do not share (Fleisher, 2008, 2011). The properties of the *too*-construction regarding the realisation or non-realisation of its complement were first discussed in (Karttunen, 1971). He classifies *too* as lexically ambiguous between implicative and non-implicative readings, suggesting that the implicative component is optional in its semantics. He illustrates this with the following two examples:

- (145) a. John was too stupid to call the cops.
b. John was too stupid to be a regent.

While (145-a) suggests that John didn't call the cops, the truth of (145-b) does not prevent John from being a regent. Hacquard (2006) argues against the ambiguity analysis and suggests that *too* is lexically implicative, while the non-implicative readings are derived from the implicative ones. She observes that in French, which has rich aspectual morphology, the (non-)realisation of the complement of *trop* 'too' depends on the aspect of the main clause verb:

- (146) a. Jean **était** trop lent pour s'enfuir (mais il s'est enfui).
Jean was.IMPF too slow to escape (but he still escaped)
b. Jean **a été** trop lent pour senfuir (#mais il sest enfui).
Jean was.PFV too slow to escape (#but he still escaped)

The perfective aspect gives rise to implicative readings, as in (146-b), while the non-implicative reading emerges with imperfective aspect (146-a). Building on existing work on the semantics of imperfective and perfective aspect in French, Hacquard argues for a generic operator in sentences involving imperfective aspect and develops an account according to which the non-implicative meaning of *too*-construction results from the presence of a generic operator that can include non actual worlds / situations.

Fleisher (2008, 2011) discusses the differences in the implicative behaviour of *too* and the AIC. He gives the following example with an implicative judgement (this judgement doesn't hold for all speakers of English – apparently, the implicative reading is just the most prominent one in (147) and would correspond to a perfective version of the *trop* construction in French):

- (147) 'War and Peace' was too long to assign. → (Fleisher, 2008, 2011)
'War and Peace' wasn't assigned.

Fleisher argues that in the AIC the opposite entailment – the entailment of the realisation – holds. The speakers I have consulted do not have consistent judgments on this matter, but they agree that the inference of non-realisation is much weaker for the AIC (and for the the FS construction) than for the *too*-construction, if at all compatible with what the AIC and the FS construction suggest:

- (148) a. 'War and Peace' was a bit long to assign. →
'War and Peace' was not assigned.
b. 'War and Peace' was a long book to assign. →

‘War and Peace’ was not assigned.

How should this difference in implicative behaviour be analysed? To account for the implicative behaviour of *too*, Hacquard (2006) proposes that *too* does not encode a comparative relation between two degrees (corresponding to the subject and defined by the infinitival clause), but rather defines a necessary and sufficient condition for the (non-)realisation of its complement by defining the unique degree that guarantees this (non-)realisation:

- (149) a. John was too slow to escape.
 b. $[[\text{slow}]](\iota d : \forall w \in \text{Acc}(w^*), \neg [[\text{J escaped}]]^w \leftrightarrow [[\text{J is d-quick}]]^w)(J)(w^*)$
 c. ‘John had the degree of slowness that guarantees that he didn’t escape’

Thus, according to Hacquard, *too* is not a degree quantifier with a comparative semantics (which would make it very similar to the denotation of the positive morpheme that I have been using in this chapter) – but rather it formulates a condition under which a proposition described by the infinitival clause can be actualised (the Q argument corresponds to the infinitival clause):

- (150) $[[\text{too}]] = \lambda P_{\langle \text{dest} \rangle} \lambda Q_{\langle \text{st} \rangle} \lambda x. P(\iota d : \forall w' \in \text{Acc}(w), \neg Q(w') \leftrightarrow P(d)(x)(w'))(x)(w)$

With this clarification, the difference in the implicative behaviour of the AIC / FS construction and the *too* construction becomes clear as they encode different information about the degree the subject has on a certain scale and its relation to a certain proposition.

Finally, as I have already mentioned in section 3.2.1, differential measure phrases are licensed in the *too*-construction but not in the AIC or FS construction:

- (151) a. This is 100-pp **too** long a book for me to read in one day. TOO
 b. *This is (a) 100-pp long (a) book for me to read in one day. AIC
 c. *This book is 100-pp long for me to read in one day. FS

I do not have a deep answer to the question why there’s a difference in the differential measure phrase licensing between (151-a) and (151-b-c), except for the puzzling persisting vagueness of the latter constructions. I readdress this issue when I discuss problems with my analysis.

3.6.3 Functional standard *for*-phrases

The ‘inappropriateness’ reading can arise with positive forms of relative adjectives without an overt infinitival clause. I have discussed the ‘bare’ case with no overt standard-affecting expression in section 3.5, and now I would like to turn to what I have called ‘functional standard’ phrases (Bylinina, 2012):

- (152) a. This book is a bit long [for the summer break].
 b. This table is a bit high [for this room].

Clearly, (152) is semantically very similar to the constructions with the infinitival clauses discussed so far. Are they just remnants of the elided infinitival clauses? For some sentences, this analysis could work quite naturally:

- (153) a. This book is a bit long [for a 3-year-old ⟨ to read ⟩].
 b. This table is a bit high [for me ⟨ to sit at ⟩].

At the same time, quite often it is rather hard to figure out what the elided infinitival clause could be, consider (152), where it is practically impossible to recover any infinitival clause these DPs could be remnants of. Thus these *for*-phrases are just PPs, quite like other kinds of PPs appearing with positive relative adjectives – comparison class *for*-phrases and judge PPs (although I propose a clausal analysis of the comparison class *for*-phrases in the next chapter):

- (154) a. John is tall for a 3-year-old.
 b. The ride was fun for John.

The FS *for*-phrases in examples (152-a) and ?? are clearly different from both kinds of degree *for*-phrases in (154), the CC in (154-a) and the ‘judge/experiencer in (154-b). One defining property of comparison class *for*-PPs as in (154-a) is the presupposition that the subject of the gradable predicate is a member of the set denoted by the DP inside the comparison class *for*-phrase (Kennedy, 2007; Bale, 2008):

- (155) John is tall for a basketball player → John is a basketball player.

Another property, which is related to the previous one, is that the DP inside the *for*-phrase, cannot be an individual-denoting one:

- (156) *John is tall for that boy.

Judge PPs as in (154-b) are limited to predicates of personal taste like *tasty*, *fun*, *interesting* etc., a subset of relative gradable adjectives (on judge phrases, see Chapter 2). In contrast to CC *for*-phrases as in (154-a), judge PPs can contain an individual-denoting DP (154-b) and they do not induce a presupposition of inclusion even in case they are plural. In addition, judge *for* alternates with *to*:

- (157) a. This food is tasty for / to teenagers.
 b. What she said was very important for / to me.

In contrast to comparison class *for*-phrases, FS *for*-phrases as in (152-a) and (152-b) can denote an individual; second, there is no inclusion presupposition between any of the participants of the situation and the *for*-phrase set (even if we include times and places). Third, in contrast to judge PPs, FS *for*-phrases combine with gradable predicates with objective ordering on a scale (objects can be ordered by price, temperature etc. independently of any observer), and they don’t have to denote a person or any sentient being, or even a physical object:

- (158) a. This puzzle is complicated for the first lesson.

- b. This car is expensive for our show.

Thus the role of FS *for*-phrases has to be different from the role of judge PPs and comparison class *for*-phrases. What is the role of FS *for*-phrases then? I suggest that their role is to give a clue as to what the ‘purpose’ or ‘goal’ relevant for the interpretation of the positive relative adjective is. Sometimes, these *for*-phrases themselves denote a situation (*first lesson, our show*), sometimes they denote a distinguished participant of the situation (that can happen to coincide with the subject, making the ellipsis analysis seemingly possible). The exact way the transition from a participant of a situation to the situation itself happens is beyond the scope of my study here.

The question that is relevant is how this inferred situation or proposition combines with the positive relative adjective to result in the ‘inappropriateness’ reading. I will stick to the same analysis that I develop for the FS construction – I assume that the ‘purpose’ defines a modal comparative class that allows us to reason about the properties the subject would have in the worlds compatible with this purpose. The comparison class would get existentially closed, quite like in the FS construction with an infinitival clause.

For example, consider the sentence *This chair is a bit high for me*. The *for*-phrase here suggests that there is a certain situation contextually or conventionally prominent with the speaker and the chair as two participants. This is most probably me sitting on a chair. The chairs that are good for me to sit on are usually from 42 to 48 cm. So the height of the chair that I am looking at exceeds the maximum height that at least one of the chairs that are good for me possesses. Although the semantics I sketch here comes out right, there are too many implicit moves on the way to this semantics, and I leave the justification of these moves and a detailed elaboration of this semantics for future work.

3.6.4 Ellipsis in the AIC revisited

In this chapter, I have developed an ellipsis analysis of the gap that is part of the infinitival clause in the AIC. According to my analysis, the deletion that is involved in the derivation of the AIC is very similar to Comparative Deletion in the comparative construction and to Relative Deletion in the matching analysis of relative clauses. There are two concerns regarding this ellipsis analysis of the AIC.

The first concern has to do with the size of ellipsis. In the comparative construction, generally, deletion of different constituents (of different sizes) is allowed under identity:

- (159) a. John read a longer book than Bill wrote a ~~a long~~ paper.
 b. John read a longer book than Bill did ~~write a long~~ book.

The parallel examples would be ungrammatical in the AIC version:

- (160) a. *‘War and Peace’ is a long book to write a ~~a long~~ paper in one day.
 b. *Bill read a long book for John to ~~read a long~~ book.

I speculate that the requirement that is part of the AIC is not a requirement on the side of ellipsis but rather a requirement on the type of the constituent that has to be identical with the part of the matrix clause structure – it has to be a DP, not more and not less. Something similar can be observed for the Relative Deletion as well. Relative Deletion states that an NP in a relative clause that is identical to an NP in the matrix clause has to be elided:

- (161) a. the book which Suzi likes (Sauerland, 2000)
 b. the book which $\langle \text{b\text{ø}o\text{k}} \rangle$ Suzi likes
 c. *the book which book Suzi likes

At the same time, this rule doesn't have anything to say about why the two NPs have to be identical in the first place. I.e., why isn't the following structure possible:

- (162) *the book which magazine Suzi likes

The requirements on which constituents have to be identical in a certain construction should be seen, I believe, independently from the deletion requirements given the identical structure. I don't know at the moment why the AIC requires the DPs to be identical.

Another related issue has to do with the Condition C violation that I have used to probe the structure of the AIC and argue that the DP that corresponds to the gap is interpreted inside the infinitival clause. I have argued that in (164), unlike in (163), the infinitival-clause-internal interpretation of the corresponding DP from the matrix clause would result in a Condition C violation, as this DP contains a referential expression that would get bound by the *for*-subject of the infinitival clause. This is a banned configuration, and this LF wouldn't survive:

- (163) a. This is a [long book about the history of **his** country] [for **John** to read].
 $\approx \textit{too}$
 b. [for John_{*i*} to read \langle a long book about the history of his_{*i*} country \rangle]
 (164) a. This is a [long book about the history of **John's** country] [for **him** to read].
 $\textit{*too}$
 b. *[for him_{*i*} to read \langle a long book about the history of John's_{*i*} country \rangle]

Fiengo and May (1994) argue that an R-expression or *wh*-trace in the antecedent of ellipsis can correspond to a pronoun in the elided material. One piece of evidence for this proposal is data like (165) – they call this *vehicle change*. In (165-a) and (165-b), the antecedent of the elided VP contains an R-expression. However, only (165-a) does not allow coreference between the pronominal subject of the elided VP and this R-expression:

- (165) a. *John likes Mary_{*i*} and she_{*i*} does \langle like her_{*i*} \rangle , too.
 b. John likes the story about Mary_{*i*} and she_{*i*} knows he does \langle like the story about her_{*i*} \rangle .

It seems like Condition B rather than Condition C determines the possibility of coref-

erence in (165), which suggest there is a pronominal rather than an R-expression in the elided VP.

In principle, vehicle change has to be available in the AIC in (164-b), which would save the derivation and make the *too*-reading available:

(166) [for him_i to read { a long book about the history of his_i country }]

I don't know what happens to vehicle change in the AIC. Perhaps vehicle change is responsible for the very weak contrast between (163) and (164). At the same time, even if there was no contrast between them at all, this wouldn't undermine my analysis. It would just leave me with one less way to probe the structure of the infinitival clause and the status of its gap, but wouldn't make my analysis less compatible with the data.

3.6.5 Issues and problems

Finally, I want to mention some problems and issues with the analysis of the AIC that I develop here. Although all the steps I make on the way to the analysis seem well motivated by the properties of the AIC and the infinitival clause that it hosts, there is something worrisome about the result I have reached. The concern is that the denotation for POS that I propose looks too much like a comparative morpheme. On the one hand, the standard denotations for POS has always been designed to encode an 'exceed' relation between the degree of the subject and the standard degree, which is basically what comparative morphemes do as well. On the other hand, there is a fundamental intuitive difference between comparative and positive constructions, and this difference is related to the famous properties of the positive morpheme – the fact that it makes use of a vague standard, and the fact that it cannot take an overt standard clause or phrase as its argument.

The AIC discussed here challenges the latter observation, as the infinitival clause serves as a standard argument for a positive morpheme, according to my analysis. But if in this particular construction POS takes an overt standard, how does one exclude expressions like *2 meters* or *John's height* from potential overt standards for POS? One could go for a syntactic solution and propose that the 2-place POS subcategorises for infinitival complement only, but I am not sure how insightful this direction would be.

As a related issue, if the standard of comparison is explicitly given in the AIC, why does the vagueness persist in this construction? Semantically, three facts were proposed as characteristic of vague standards as opposed to crisp ones (Kennedy, 2007; Sassoon and Toledo, 2011; McNally, 2011). First, vague standards are context-dependent, while crisp ones are not:

- (167) a. Compared to her friend Andrea, Marta is tall.
b. ??Compared to Door#1, Door#2 is closed.

Second, predicates with a crisp standard do not give rise to the Sorites paradox: if we open a door which is closed even the smallest amount, we can easily determine that the door will no longer be closed.

A third, related property is the existence of borderline cases for which it is difficult or impossible to decide whether the relative adjective truthfully holds or not; absolute adjectives in general lack these borderline cases.

It is not entirely clear to what extent these properties hold for the AIC / FS construction. Context-dependency tests seem to group these constructions together with non-context dependent ones, although the judgements are quite shaky:

- (168) a. ??Compared to 'Pnin', 'War and Peace' is a long book to read in one day.
 b. ??Compared to 'Pnin', 'War and Peace' is a bit long to read in one day.

However, the Sorites reasoning holds, at least to a certain extent: if you have a long book to read in one day, taking one line out of it would not make any difference with respect to the truth of *a long book to read in one day* applied to the result. And it's hard to imagine a precise point in the Sorites sequence where one bit of removed text would make the deciding difference.

The borderline cases seem to be compatible with the semantics of the AIC / FS construction as well. The fact that John is a tall guy to drive a certain car doesn't immediately exclude John from being able to drive it – unlike in, say, *too* constructions:

- (169) a. John is too tall to drive this car. #But he can still drive it.
 b. John is a tall guy to drive this car. But he can still drive it.

The fact reported in (169) might have nothing to do with vagueness, however. What is at stake here is the implicative nature of *too* that the AIC / FS construction don't share, as discussed above.

Thus, it's hard to say how crisp or vague the 'purpose-related' standard is. As a first attempt, one might argue that this apparent vagueness is inherited from the infinitival clause – and, ultimately, has to do with the modality inherent to the infinitival clause. There might be some indeterminacy with respect to what set of possible worlds is included in the modal base. Consider Fleisher's example *Bob is a short guy for the Lakers to draft* – the crispness of this sentence directly depends on the crispness of criteria the Lakers have for the height of their team members. In case there are strict rules (say, the players should be taller than 190cm), the Sorites paradox will not arise for this sentence, as the precise boundary between true and false will be crossed eventually, and the second premise will not hold.

But potentially, and true for most cases, the set of possible worlds in the modal base in these sentences is indeterminate. This fact could be seen as related to the availability of differential measure phrases with *too*, but not with the AIC – as precise measurement relies on the well-fixed endpoints of the interval:

- (170) a. This book is 50 pages too long to read in one day.
 b. #This is a 50 pages long book to read in one day.

I don't think I now have coherent answers to the issues discussed in this subsection. At the same time, I don't think that these puzzles related to vagueness of the AIC undermine the analysis I am presenting here. On the contrary, they illustrate a very interesting and unique combination of properties that the AIC possesses – it is somehow

in between the vague and the crisp degree constructions, a status which is still not well understood. The main contribution of my study is the discovery of this puzzle – on the one hand, I have shown that a structural analysis of the infinitival clause in the AIC is inevitable, and it has to supply the standard for POS; on the other hand, the familiar contrasts between the positive and comparative constructions in terms of vagueness and the availability of differential measurement persist. I hope that this study will serve as a starting point for further work on a better understanding of these issues.

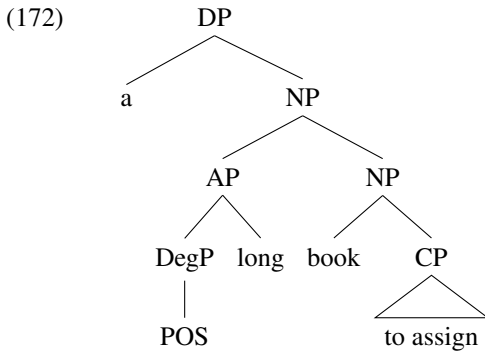
3.7 Appendix 1: Fleisher (2008, 2011) on the AIC

The main claim that (Fleisher, 2008, 2011) makes is that the infinitival clause in the AIC is a regular infinitival relative clause. Thus the structure of the AIC (171-a) would be very similar to the structure of the same sentence without the adjective:

- (171) a. ‘Middlemarch’ is a long book to assign. (NOMINAL) AIC
 b. ‘Middlemarch’ is a book to assign. INFINITIVAL RELATIVE CLAUSE

As a basic simplified structure for the DP with an infinitival relative clause as in (171-b), Fleisher assumes direct adjunction of the infinitival CP at the NP-level.

In a parallel way, Fleisher argues for a structure for (171-a) that involves a regular infinitival relative clause *to assign* that attaches to the lowest NP (ignoring the internal structure of the infinitival clause for the moment):



As seen from (172) and as discussed in the main text of the chapter, under this analysis, the infinitival clause doesn't have any direct syntactic or semantic relation to the adjectival phrase or the degree phrase, here consisting of the positive morpheme POS. This means that the interpretational effect of interaction between the degree phrase and the proposition introduced by the infinitival clause (the degree of length inappropriate for the purpose at hand) apparently cannot be derived in a straightforward compositional way. Fleisher argues that this interaction can nevertheless be derived given the independently known properties of standards in the positive degree construction and the inherent modality of the infinitive clauses. In what follows, I describe his analysis and the his motivation for this kind of analysis.

In a nutshell, Fleisher proposes that the NP with the infinitival relative clause (*book for John to read*) makes the intensional set of books salient enough in context, so that it restricts the domain of the attributive adjective (*long*), which affects the value of the standard of the positive form of the adjective. The mechanism in play here is, according to Fleisher, very similar to what is going on with attributive adjectives in a DP that does not include an infinitival relative clause at all. Say, in a DP like *a tall man* the NP *man* also does not interact with a DegP in a direct compositional way, but it

makes the set of men salient enough in the context so that the membership standard for the predicate *tall* is calculated with respect to the class of men – in other words, the NP *man* indirectly restricts the domain of the adjective *tall* (more technically speaking, it restricts the measure function that is part of the lexical meaning of *tall*).

Fleisher derives the ‘inappropriateness’ interpretation from the interaction between the semantics of POS and the inherent modality of the infinitival clause. To give a formal account for this interaction, a modification of the usual denotation for POS is needed.

Fleisher takes the state-of-the-art semantics of POS as found in, for example, (Kennedy, 2007), as a starting point:

- (173) a. $\llbracket \text{POS} \rrbracket = \lambda G_{\langle e, d \rangle} \lambda x_e. G(x) >! d_{ST}$
 b. $\llbracket \text{POS long} \rrbracket = \lambda x_e. \mathbf{long}(x) >! d_{ST}$

In (173), the input for the positive morpheme is a measure function G (this would be the type of gradable adjectives – Fleisher follows Kennedy 2007 in treating gradable adjectives as measure functions of type $\langle e, d \rangle$) and the subject x ; ‘>!’ is the **significantly exceed** relation that is going to be important for Fleisher’s analysis of the ‘inappropriateness’ semantics of AICs. The nature of the standard value d_{ST} is deliberately left underspecified in (173), as it is sensitive to various contextual factors. Fleisher suggests spelling at least one of these factors out directly in the entry for POS. The modification Fleisher introduces concerns the domain restricting predicate that restricts the measure function that is part of lexical semantics of the gradable adjective like *long*:

- (174) a. $\llbracket \text{POS} \rrbracket = \lambda G_{\langle e, d \rangle} \lambda x_e. G(x) >! d_{ST}(\lambda y_e : R(y). G(y))$
 b. $\llbracket \text{POS long} \rrbracket = \lambda x_e. \mathbf{long}(x) >! d_{ST}(\lambda y_e : R(y). \mathbf{long}(y))$

(174) is very similar to (173), the only difference being that now the standard value is treated as a function from a set of individuals rather than just a degree without explicit information about where it comes from. How is this set of individuals formed? Intuitively, it corresponds to the notion of comparison class – the set of individuals in the domain of *long* (restricted by the context).

Fleisher makes one further adjustment – namely, he introduces a tool to restrict the comparison class taken into consideration while calculating the standard value d_{ST} . In (174), R is the domain-restricting set – say, for a predicate like *tall*, the standard, or the threshold for counting John as tall or not tall could be different depending on which comparison class is in play. John’s height could be evaluated with respect to men in general, or basketball players, or 11-year-old kids, and in all these cases the standard – and consequently, the truth conditions of the whole sentence – would potentially be different.

The idea that the standard value is dependent on some salient set of individuals is often found in the literature for different constructions involving the positive form of gradable adjectives. More specifically, in the attributive construction (*a tall man*) this set of individuals seems to be typically (but not always, see Kamp and Partee 1995) determined by the head noun (*man*), in a construction with a *for*-phrase (*tall for a*

basketball player), this set is determined by the nominal complement of *for* (*basketball player*). These observations can be traced back to at least to (Siegel, 1976), for a more recent discussion see (Kennedy, 2007). Kennedy (2007) uses the mechanism of domain restriction to capture the effect of comparison class *for*-phrases on the standard value. That is, if *tall* is a function from objects to heights, then *tall for a basketball player* is a function from basketball players to heights:

$$(175) \quad \llbracket [_{AP} \text{ tall for a basketball player }] \rrbracket = \lambda x : \text{basketball player}(x). \mathbf{tall}(x)$$

Fleisher points out the differences between the impact of comparison class *for*-phrases and the head nominal in the attributive construction, illustrated with the example that Kennedy (2007) discusses too (example attributed to Bogusławski):

$$(176) \quad \text{Kyle's car is an expensive BMW, though its not expensive for a BMW. In fact, its the least expensive model they make.}$$

As (176) shows, the standard in the attributive positive construction *an expensive BMW* doesn't have to be calculated on the basis of the smaller domain restricted to BMWs; it can be a more general standard, e.g., one for cars in general. This fact leads Fleisher to conclude (following Kennedy 2007) that the nature of the domain restriction in this case – in contrast with comparison class *for*-phrases – is not strictly speaking semantic, but is based on pragmatic, contextual determination of an appropriate property to serve as domain restrictor. The reason that there is a strong tendency for the head noun to supply the domain restrictor is that the modied noun denotation might be the most salient property at the point of interpreting the adjectival predicate. Thus Fleisher does not introduce an extra domain-restricting argument in the denotation of POS, rather he proposes that the contextually determined domain restrictor property *R* is a free variable whose value is filled in 'on the fly'.

Let's follow the derivation for the full sentence with an attributive positive adjective (without an infinitival clause). The composition up to the point where the value for *R* has to be determined is shown below:

$$(177) \quad \llbracket \text{'Middlemarch' is a long book} \rrbracket = \llbracket \text{POS long book} \rrbracket (\llbracket \text{'Middlemarch'} \rrbracket) = \mathbf{long}(\text{Middlemarch}) >! d_{ST}(\lambda x_e : R(x). \mathbf{long}(x)) \wedge \mathbf{book}(\text{Middlemarch})$$

After *R* gets its value from the head NP *book*, which is normally the case, the interpretation ends up as in (178):

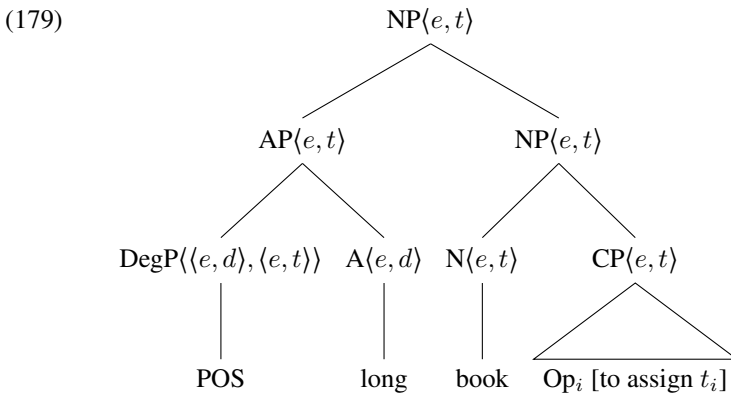
$$(178) \quad \mathbf{long}(\text{Middlemarch}) >! s(\lambda x_e : \mathbf{book}(x). \mathbf{long}(x)) \wedge \mathbf{book}(\text{Middlemarch})$$

Thus the sentence *Middlemarch is a long book* is true iff Middlemarch's length significantly exceeds the standard of length for books, and Middlemarch is a book.

The modification of the entry for POS that Fleisher (2008, 2011) suggests, introducing the domain restriction as a parameter of the standard value, allows him to derive the semantics for the familiar attributive positive construction in a rather straightforward way. The domain restriction in the input of the standard-calculating function is going to be one of the ingredients of the 'inappropriateness' reading in

the AIC. Also, the analysis will make crucial use of the ‘significantly exceed’ relation found in the POS denotation. However, this is not enough to get the ‘inappropriateness’ reading, which is absent with the regular attributive positive construction without an infinitival clause. To see how this effect arises in the AIC according to Fleisher’s analysis, the infinitival clause needs to be added in a particular way.

Starting with an oversimplified placeholder semantics for the infinitival clause, assume for a moment that the infinitive *to assign* has the semantics $\lambda y_e \lambda x_e . \mathbf{to_assign}(x)(y)$. Fleisher adopts the head-external analysis of relative clauses as found in (Chomsky, 1977). Under this analysis, a [+wh] null operator originating inside the infinitival clause moves to SpecCP. Semantically, the operator movement triggers abstraction over its trace to yield a CP constituent of type $\langle e, t \rangle$ (Quine, 1960, and subsequent literature). The infinitival relative CP adjoins to NP of type $\langle e, t \rangle$ and they compose via $\langle e, t \rangle$ intersection. The composition is depicted in the tree below:



As a further convention / oversimplification, the semantics of the arbitrary PRO_{arb} subject of the infinitival clause that is presumably found in a sentence like ‘*Middlemarch*’ is a long book to assign is represented with the individual constant **a**.

The denotation of the NP that consists of the common noun *book* modified by the infinitival CP is shown below:

- (180)
- $\llbracket \text{book} \rrbracket = \lambda x . \mathbf{book}(x)$
 - $\llbracket \text{Op}_i \text{ [to assign } t_i \rrbracket \rrbracket = \lambda x . \mathbf{to_assign}(x)(\mathbf{a})$
 - $\llbracket \text{book} [\text{Op}_i \text{ [to assign } t_i \rrbracket] \rrbracket = \lambda x . \mathbf{book}(x) \wedge \mathbf{to_assign}(x)(\mathbf{a})$

This NP in (180-c) now combines with the positive AP *long*. In a sentence like (181), this NP denotation would by default serve as the contextually determined value for the domain-restricting property R in the positive morpheme POS. Of course, this NP denotation also predicates of the matrix subject in the usual way. The resulting truth conditions for the whole sentence exemplifying the AIC are shown in (181):

- (181) $\llbracket \text{Middlemarch is a long book to assign} \rrbracket =$
 $\llbracket \text{POS long book to assign} \rrbracket (\llbracket \text{‘Middlemarch’} \rrbracket) =$
 $\mathbf{long}(\text{Middlemarch}) \succ! d_{ST}(\lambda x : R(x) . \mathbf{long}(x)) \wedge \mathbf{book}(\text{Middlemarch}) \wedge$

$$\begin{aligned} &\mathbf{to\text{-}assign}(\mathit{Middlemarch})(\mathbf{a}) = \\ &\mathbf{long}(\mathit{Middlemarch}) \succ! d_{ST}(\lambda x : \mathbf{book}(x) \wedge \mathbf{to\text{-}assign}(x)(\mathbf{a}).\mathbf{long}(x)) \wedge \\ &\mathbf{book}(\mathit{Middlemarch}) \wedge \mathbf{to\text{-}assign}(\mathit{Middlemarch})(\mathbf{a}) \end{aligned}$$

The place-holder semantics for *to assign* used above should be unfolded to make clear the modal semantics of the infinitival clause that will be responsible – together with the modified POS entry – for the ‘inappropriateness’ effect.

Fleisher bases his analysis on an approach to the semantics of modality developed in (Kratzer, 1981, 1991). He characterises the type of modality in the AIC infinitival clause as involving a circumstantial modal base with a bouletic modal ordering source BOUL (although see the main text of the chapter for a slightly different characterisation).

A bit more formally, Fleisher assumes that the infinitival clause lies in the scope of a silent bouletic modal. The modal imposes a (partial) ordering on the set of accessible worlds (the modal base). Then, in line with Kratzer’s modal semantics, one could compare ‘the levels of consistency’ of worlds with BOUL(*w*). Without going too much into technical detail on the somewhat non-conventional solution Fleisher proposes for the silent modal in the infinitival (which is not crucial for the discussion here), I describe it in plain English here. For Fleisher, the infinitival CP *to assign* in the AIC as well as in a regular relative use denotes the set of individuals that meet some consistency-with-bouletic-ideal standard for assignments. The full NP denotation for *book to assign* – i.e., the intersection of the lower NP denotation (*book*) and the adjoined infinitival CP denotation (*to assign*) – is going to be precisely the domain restricting property *R* that is part of POS denotation.

With this NP denotation as the domain restriction, the standard of comparison for the AIC is modalized. Thus, in ‘*Middlemarch*’ is a long book to assign, the standard of comparison is a standard of length for books that are assigned in worlds consistent with what is specified by a bouletic modal ordering source.

Overall, Fleisher’s semantics for AICs states that the length of ‘*Middlemarch*’ significantly exceeds the length of books that might reasonably be assigned. This, Fleisher claims, is the source of the inappropriateness reading. For him, this is the same as saying that there is something unusual, unexpected, or inappropriate about the book’s length for the purpose at hand.

As a final remark, I quickly address two arguments that Fleisher refers to when arguing for the relative clause analysis. I have omitted these arguments from the main text of the chapter, as they are particular to the exact implementation of the pragmatic analysis that Fleisher develops, and would have blurred the point I was making in the main text.

Two omitted arguments

Quantifier scope

Fleisher (2008, 2011) compares infinitival clauses in the AIC to the known standard-denoting expressions, such as *than*-clauses in comparative constructions and infinitival

clauses in *too*-constructions.

The difference between infinitival clauses in the AIC and *than*-clauses in comparatives that Fleisher discusses has to do with quantifier scope. AICs fail to exhibit the well-known scopal interactions that are characteristic of ordinary comparatives – namely, some of the quantifiers in the *than*-clause may or must take semantic scope over the comparative morpheme in the matrix clause (Beck, 2010, and references therein):

- (182) a. John is taller than every girl is.
 $\forall x[\mathbf{girl}(x) \rightarrow \text{John's height} > x\text{'s height}]$
 b. John is taller than exactly two girls are.
 $|\lambda x.\mathbf{girl}(x) \wedge \text{John's height} > x\text{'s height}| = 2$

In both sentences in (182), the quantificational element is interpreted higher than the comparative. (182-a) means that John is taller than the tallest girl. This intuition is captured by the scopal relationship *every girl* > *-er*. With the opposite scope, *-er* > *every girl*, the sentence would mean that John is taller than the height that all girls have, i.e., the height of the shortest girl; this reading is not available for (182-a). A similar reasoning holds for (182-b).

To make these sentences more parallel to the AIC, Fleisher uses the attributive comparative constructions and notes that the same scopal interactions still hold:

- (183) a. John is a taller man than all of his friends are.
 $\mathbf{man}(\text{John}) \wedge \forall x[\mathbf{friend}(x) \rightarrow \text{John's height} > x\text{'s height}]$
 b. John is a taller man than exactly two of his friends are.
 $\mathbf{man}(\text{John}) \wedge |\lambda x.\mathbf{friend}(x) \wedge \text{John's height} > x\text{'s height}| = 2$

Various attempts at explaining these patterns were made in the literature, but the choice of a particular solution is not crucial for the point that Fleisher makes – in particular, he points out the difference between the scopal behaviour of the quantifiers in the degree complements (*than*-clauses) and in the infinitives in the AIC construction. The interpretations of (184-a) and (184-b) make it clear that the scope of the quantificational element in the infinitival clause is lower than what is observed in the *than*-clauses:

- (184) a. Middlemarch is a long book for every student to read.
 $M\text{'s length} >! \mathbf{max}(\lambda d.\forall x[\mathbf{student}(x) \rightarrow \mathbf{to-read}(a\ d\text{-long book})(x)])$
 ‘Middlemarch is longer than what one can reasonably expect all of the students to read.’
 b. Middlemarch is a long book for more than two students to read.
 $M\text{'s length} >! \mathbf{max}(\lambda d.|\lambda x.\mathbf{student}(x) \wedge \mathbf{to-read}(a\ d\text{-long book})(x)| > 2)$
 Middlemarch is longer than what one can reasonably expect (any group of) more than two students to read.

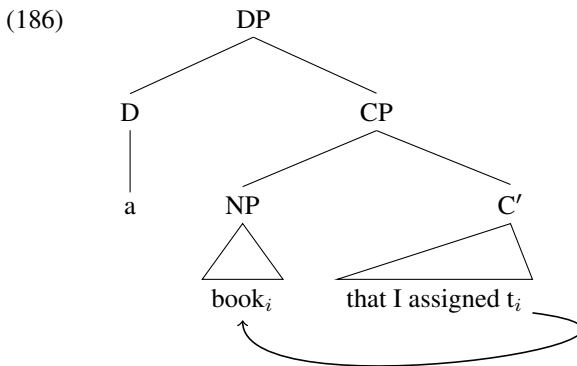
Given that there is no satisfactory solution to the quantifiers in *than*-clauses problem in the literature, I cannot say much about the contrast that Fleisher observes.

Idiom chunks

Finally, Fleisher considers the facts from idiom chunk interpretation. As illustrated in (185), displaced idiom chunks may serve as the nominal head of the AIC:

- (185) a. That is a delicate **nerve** to **touch**.
 b. That is a big **albatross** to **have around your neck**.
 c. That is a **hard bargain** for you to **drive** with someone in such dire need.

These idiom chunk facts, under the standard assumptions, point in the direction of a relative clause structure – more specifically, a raising head-internal relative clause structure where the idiom chunk starts in a position local to the rest of the idiom (the gap position) and then moves to a SpecCP position (Vergnaud 1974, Kayne 1994, Bianchi 1999). The raising analysis of DP with the regular finite relative clause (*a book that I assigned*) is presented in the tree below as a reminder:



Although it is usually assumed that the chunk is interpreted only inside the relative clause, there might be problematic cases for this standard treatment of idiom chunks in the first place, and a kind of a ‘matching’ possibility for idiom chunk interpretation might be needed anyway. Here is the example with *too*, which clearly cannot be analysed as a relative clause construction (see the discussion of the relation between the infinitival clause and *too* in section 3.6.2 above):

- (187) The raw **nerve** of grief is too intense for them to **touch**. (from internet)

Overall, I conclude that the state of knowledge on idiom chunk interpretation does not allow us to use these facts as a deciding argument on the structure of the AIC.

Remarks on comparison classes

4.1 Introduction

In this chapter, I study the so-called comparison classes (CCs), or reference sets, in degree constructions. Comparison classes are usually understood as sets that somehow affect the interpretation of the positive form of a gradable adjective. The comparison class can either be implicit or it can be explicitly specified with a comparison class *for*-phrase (CC *for*-phrase):

- (1) John is tall (for a basketball player).

The long-standing intuition about the impact of both explicit and implicit comparison classes is that they relativize the standard that adjectives make use of – i.e. the height one has to have in order to count as tall for a basketball player exceeds the height one needs in order to count as tall for men, or people in general (Wheeler, 1972; Bartsch and Vennemann, 1973; Siegel, 1976; Cresswell, 1977; Klein, 1980; von Stechow, 1984, a.m.o.). Various ways of capturing this intuition were explored in the literature in the past several decades, involving diverse hypotheses about the structural and semantic role of CC *for*-phrases in sentences like (1).

The majority of these studies address the question of how CC *for*-phrases, as a whole, enter into the derivation of the CC construction, remaining silent about their internal structure and semantics. In this chapter, I show that existing theories of CCs do equally well in covering the basic data that has formed the empirical core of the studies of CCs. At the same time, all these theories have a common problem: they do equally badly at covering a new range of facts that I will present.

I argue that the core of the problem is the current lack of understanding of the internal structure and semantics of CC phrases. In particular, the new data in this chapter will challenge the view that CC phrases denote a simple set of individuals and will suggest an analysis with a more articulated internal syntactic structure of CC phrases, containing a clausal layer. At the same time, the phenomena I address in this chapter are not understood well enough to treat them as conclusive diagnostics for a particular syntactic structure – and in this sense, the structural solution that I propose is tentative, as discussed at the end of the chapter.

As a preview of the data, consider the facts below, which are quite surprising given everything that is known so far about CCs:

- (2) a. John is tall [for a son of mine].
 b. He is quite shy [for the first man on the Moon].
 c. John and Bill are tall [for {*a basketball player / basketball players}].

(2-a) can be uttered by someone who only has one son, and in this case – under a simple view that this *for*-phrase denotes a set – the CC is going to be a singleton set. In (2-b), the DP in the complement of *for* is a definite description – usually taken to denote individuals rather than sets of individuals. On top of that, the satisfier of the description is, again, clearly unique, as there is only one first man on the Moon. Both (2-a) and (2-b) are, at first glance, cases of ‘degenerate’ CCs with only one member. It is not clear how a theory of CCs should deal with these.

Finally, (2-c) shows that the form of the DP in the CC *for*-phrase depends on the subject of the gradable predicate – a plural subject requires a plural DP in the *for*-phrase.

It is hard to tell on the spot to what extent these examples are problematic for existing views on the CC construction, as I have not presented these theories in an explicit enough form to make any predictions in this regard. As I move on, I will show the problematic status of the examples in (2) and argue that there is a gap in our understanding of the semantics and/or structure of CC phrases.

I will try to fill in this gap and develop an analysis of CC *for*-phrases so that the new facts, some of which are shown above, receive an explanation. The questions I will be concerned with are the following: what does the notion of a ‘set’ (which I have used so far as an intuitive description) correspond to in type-theoretic terms? Can the set denoted by the CC *for*-phrase be a singleton set consisting of only one individual? How does the dependency between the subject and the *for*-PP arise? What consequences do the answers to these questions have for a structure of a CC *for*-phrase and the overall structure of a CC construction?

To answer these questions, I first set the stage by summarising the existing theories of CCs and formulate the predictions one might extract from these theories. I argue that – to the extent they are explicit on these matters – none of the existing theories as they stand can predict the facts illustrated in (2). Thus, improvements have to be introduced into all of them to cover the new facts I present. I will argue for a **modal clausal** theory of CC *for*-phrases. In one sentence, I argue that CC *for*-phrases denote a set of individuals relativised to possible worlds. On the syntactic side, the analysis

I develop involves a clausal structure as a complement of *for* and operator movement from the subject position of this *for*-clause – in a way totally parallel to other modal *for*-clauses in degree constructions and beyond, mainly infinitival clauses.

I have named this chapter ‘Remarks on comparison classes’ as the issues raised by the new data I discuss here are important not only for CCs *per se* and not only for degree constructions CCs might be part of – rather, I see these new data as a way to further explore several areas of semantics, such as distributivity, the semantics of definite descriptions, and the licensing of bare objects in certain languages. The data I involve in my discussion come from English, Czech, Japanese and Greek.

The plan of the chapter is the following. In section 4.2 I introduce the relevant background on CC *for*-phrases: first I will distinguish the CC *for*-phrases from other types of *for*-phrases in degree constructions and sketch their role in defining the standard of comparison in the positive construction; then I present two major theories on the semantics of the CC construction and show that they cover the basic data on CCs equally well in terms of resulting semantics. As none of the new data I present will help distinguish between the two semantic theories, for the uses of the current chapter I will pick one that is compatible with the existing syntactic evidence (as discussed in Fults 2006), and return again to the question of the equivalence of these theories for my data at the end of the chapter. After setting the stage for the discussion, in section 4.3 I lay out the facts that are problematic under any existing view on CCs. Then I look at these problems in turn: first, I discuss the issues of distributivity in CCs, then I talk about definite descriptions in the CC *for*-phrases. This will allow me to formulate a hypothesis about the structure of CC *for*-phrases. Section 4.4 works out the details of the interpretation of CC *for*-phrases: I motivate a modal analysis of the CC construction and clarify the role of *for* in the modal interpretation of the construction. Section 4.5 takes stock and sums up the analysis. In section 4.6, I take a critical look at the analysis formulated in the previous section, focusing on issues and complications.

4.2 The background on CC *for*-phrases

4.2.1 Delineating the phenomenon

Two observations have shaped theories of comparison classes since the 1970s – the fact that CCs affect the standard involved in the semantics of positive forms of gradable adjectives; and the presupposition of inclusion between the subject of the gradable adjective and the CC set. The first fact has already been illustrated and is responsible for the intuition that the height one has to have in order to count as tall for a basketball player exceeds the height one has to have to count as tall for men or people in general. The latter effect is the inference that we get from (1) that John is a basketball player:

(3) John is tall for a basketball player → John is a basketball player.

I will not question or test the presuppositional status of this inference. Moreover – as a disclaimer – I want to point out that establishing a correct explanatory compositional analysis of this inference and its projecting behaviour will not be within the scope

of the current chapter. The formalism introduced in Chapter 1 does not allow me to treat presuppositions in a compositional way, and I am intentionally setting the proper treatment of presuppositions aside, as it is not directly relevant and would not make any difference in the choice of the analysis for CC constructions. I will keep the discussion of this presupposition at a descriptive level, only acknowledging the presence or absence of the inference, what the content of the inference is, and what existing theories of CCs say about them.

Let's take a look at the different theories that were designed to account for these two properties, but first let's quickly delineate the scope of the study. The positive construction can host a variety of *for*-phrases, some of which were studied in the previous chapters. Not all of them would count as CC *for*-phrases. Consider the range in (4):

- (4)
- | | | |
|----|---|--------------------------|
| a. | John is tall for a 3-year old. | |
| b. | The ride was fun for John. | (Chapter 2) |
| c. | This hat is a bit expensive for a 3-year old. | (Chapter 3; Bylina 2012) |
| d. | Mia wants an expensive hat for a 3-year old. | (Schwarz, 2010) |
| e. | The store is crowded for a Thursday. | (Solt, 2011) |

The role of *for*-phrases is different in the sentences in (4). (4-a) illustrates a paradigmatic case of comparison class (CC) *for*-phrase, (4-b) includes a judge PP, which was discussed in much detail in Chapter 2, (4-c) contains a 'functional standard' *for*-phrase, as discussed in the previous chapter.

(4-d-e) illustrate a more complicated case – in (4-d), the set of 3-year-old kids seems to supply a 'range' over which Mia's degree on a certain scale is evaluated, and Mia is inferred to be a member of this set; however, this 'inclusion' relation is not between the subject of the gradable predicate (*hat*) and the *for*-phrase set, as one would expect. This construction was discussed in (Schwarz, 2010) and will be important in the discussion of the semantics of CCs in section 4.4. Finally, in (4-e), the comparison class is the set of all Thursdays, and although there is no presupposition that the subject of the adjective is a member of that set, there is a similar presupposition that the event described in the sentence takes place on Thursday. Later in section 4.5, I will discuss the extensions of the analysis that would allow us to treat these cases as ordinary CC *for*-phrases.

Unlike CC *for*-phrases – including the special cases in (4-d-e) – the judge-phrases as in (4-b) and the 'functional standard' phrases as in (4-c) can contain an individual-denoting DP (I return to the apparent counterexample with individual-denoting CC *for*-PPs given in the introduction below, in section 4.4), including proper names:

- (5)
- | | | |
|----|---------------------------------------|----------|
| a. | This ride was fun for John. | Judge-PP |
| b. | This hat is a bit expensive for John. | FS-PP |
| c. | ??He is tall for John. | CC-PP |

Furthermore, unlike CC-PPs, judge-PPs are restricted to predicates of personal taste that introduce them as experiencer arguments of the events they make reference to (see Chapter 2 for more details). The class of predicates combining with CC-PPs is wider

than that:

- (6) a. The ride was fun for John. JUDGE-PP
 b. ??John is lazy for Mary.
- (7) a. This ride was fun for a roller-coaster ride. CC-PP
 b. John is lazy for a professor.

Finally, functional-standard PPs, as discussed in Chapter 3, introduce (sometimes indirectly) a ‘purpose’ situation for which the degree reached by the subject is inappropriate rather than a set of individuals or an opinion-holder:

- (8) This hat is a bit expensive for a 3-year-old.
 ≈ PRICE(this hat) > PRICE(hats compatible with **3yos wearing / owning them**)

Thus I conclude that the main characteristic property of CC *for*-phrases in contrast to other standard-affecting expressions in degree constructions is the presupposition of inclusion between the subject of the gradable predicate and the set of individuals denoted by the CC *for*-phrase. The other known kinds of *for*-phrases appearing in construction with the positive form of gradable adjectives do not constitute a counterexample to this characterisation, but rather are instances of different phenomena (analysed in the other chapters of the current dissertation – Chapter 2 and Chapter 3). I exclude judge-PPs and functional standard PPs from consideration for the rest of this chapter.

The rest of the section will introduce an observation that is important for understanding the core role of CC *for*-phrases as a way to reduce the vagueness of the standard of comparison. After these preliminary remarks are formulated, I move on to introducing two major existing semantic theories of CC PPs. I append the semantic discussion with an excursus into the syntax of CC *for*-phrases, as studied in (Fults, 2006). From this discussion, I conclude the basic semantic equivalence of the two theories. However, structurally, according to Fults (2006), one of the theories is more realistic. As the theories make the same semantic predictions with respect to the new data that I focus on here, choosing one of these theories is beyond the goals of the current chapter. However, I will discuss some structural options for CC *for*-phrases and in what follows, use the more structurally realistic theory as a default way to talk about the overall structure of CC constructions.

4.2.2 CCs and the contextual standard

It is common wisdom that CC *for*-phrases only combine with gradable adjectives which make use of contextually defined, vague standards of comparison in the positive form – and therefore are taken to play a role of ‘reducing’ (though not eliminating) this vagueness (Bartsch and Vennemann, 1973; Cresswell, 1977; Klein, 1980; Fults, 2006; Bale, 2008, 2011; Sassoon and van Rooij, 2012).

A step back is needed here in order to talk about different kinds of gradable adjectives. As already discussed in Chapter 3, the class that a gradable adjective belongs

to, by hypothesis, is determined by the type of scale the gradable adjective lexicalizes (Rotstein and Winter, 2004; Kennedy and McNally, 2005):

(TOTALLY) OPEN:	○————○
LOWER CLOSED:	●————○
UPPER CLOSED:	○————●
(TOTALLY) CLOSED:	●————●

Adjectives that make use of a scale that is closed on at least one end are absolute adjectives, and adjectives with totally open scales are relative ones. Furthermore, the endpoints of the scale serve as standards for the positive forms of absolute adjectives, while for relative adjectives the standard in the positive form is much less determined and more vague. For example, to count as *dirty* or *wet* (lower closed scale), it is enough to have any non-zero amount of dirt or water. To count as *clean* or *dry* (upper closed scale), to the contrary, an object has to be totally free from liquid or dirt. *Tall / short*, *wide / narrow* (totally open scale) clearly use something like a vague ‘mid-point’ as a standard instead – to count as tall, one needs to exceed the height that is, at a first guess, somewhere close to the median of the heights of people in general (or in a specified comparison class). Kennedy (2007) connects the scale type and the type of the standard an adjective makes use of by a pragmatic principle that ensures that a conventionally determined standard (maximal or minimal) will be preferred over a contextually determined standard when an adjective’s scale is closed. For relative adjectives, there will be no conventionally provided degree to serve as a standard, and the standard has to be chosen contextually.

CC *for*-phrases only appear with relative gradable adjectives. Since absolute adjectives have a fixed standard, CC *for*-phrases do not readily appear with them (unless the absolute adjective is coerced to a relative one – see McNally 2011; Sassoon and Toledo 2011):

- (9) a. John is tall / short for a 3-year old.
 b. #This towel is wet / dry for a used towel.
 c. #This glass is full / empty for a wine glass.

Thus, the CC *for*-phrase appears to have a relation to the standard that relative adjectives make use of in the positive form. But how exactly should this relation be implemented in the semantics of CC constructions, keeping in mind the presupposition?

The role of *for*-phrases in the CC construction could potentially be analysed in several ways. There are multiple choices to be made with respect to the status of the CC *for*-phrase along at least two axes, giving rise to a number of analytical possibilities. First, the *for*-phrase could be an argument of some item in a sentence, or it could be an adjunct / modifier. Second, it could be projected at different levels of structure – it could be introduced at the level of the adjective, in the degree phrase, or at the clausal or sentential level. Not all the combinations of these possibilities are equally explored in the literature. Basically, there are two major theories of CCs – one of them, which I label a ‘degree complement’ analysis, assigns an argumental status to CC *for*-PPs, and

introduces them in the DegP as an argument of the degree morpheme POS. The other one, which I will call a ‘domain-restricting’ analysis, treats CC *for*-PPs as modifiers at the level of AdjP. I won’t construct tentative realisations of all the possible analyses of CC *for*-phrases. Instead, I take the following route: I will describe the two theories that are already attested in the literature and argue that, semantically, they produce an equivalent result in covering the data that I have introduced so far. As these theories amount to structurally different analyses of the CC construction, I will rely on Fulst’s (2006) conclusion that one of these theories is more realistic in terms of structure.

Building on Fulst’s conclusion, I choose which theory to formulate my discussion in. However, I want to stress that the data I discuss in this section do not allow me to prove either of these theories right or wrong. Rather, I show that any theory of the external syntax and semantics of the CC *for*-phrases is not complete without a more serious look inside these PPs.

The description of the existing analyses of the CC construction will serve as a background over which new data will be presented and analysed.

4.2.3 The degree complement analysis

The classic way of incorporating the effect of CCs on positive constructions is to include them as arguments to a function that fixes the value of the standard (Bartsch and Vennemann, 1973). The standard degree that is part of the denotation of the positive morpheme POS is quite often assumed to be just taken from the context, without further specification of how its value is calculated (an example POS denotation modified from Kennedy 2007; d_{ST} is the standard degree):

$$(10) \quad [\text{POS}]_{\langle\langle d, et \rangle et \rangle} = \lambda G_{\langle d, et \rangle} \lambda x_e. \mathbf{max}(\lambda d. G(d)(x)) > d_{ST}$$

Under the classic analysis of CCs, the standard degree is not taken for granted – rather, it is treated as an output of a standard-calculating function that takes a gradable predicate G of type $\langle d, et \rangle$ based on a scale S (or measure function μ for a scale S) and a CC C as its input and returns a degree that counts as a **norm** given a certain scale and a set of relevant individuals:

$$(11) \quad d_{ST} = \mathbf{norm}(G)(C)$$

The **norm** can correspond to a **mean** or a **median** depending on the mathematical properties of the scale and the views of the author of a particular implementation of this idea. One version of the same idea is to have a non-deterministic standard-calculating function – a function that doesn’t have to give back one and the same degree every time it applies.¹ An implementation of this version can be found in (Kennedy, 2007), where the **significant** standard-calculating function is proposed – a function that returns a significant degree for a certain scale given a certain salient class of individuals:

¹See Chapter 2 Appendix 1, where I discuss the non-deterministic standard-calculating function in much detail – along with other ways in which the standard of the positive morpheme POS is subjective and/or context-dependent.

$$(12) \quad d_{ST} = \mathbf{significant}(G)(C)$$

Whatever the exact measure involved in the calculation of a standard is, the role of CCs under this approach is the same – providing an input for this function. Furthermore, there is a difference between the way in which the CC is provided by *for*-phrases and by other means – for example, head nouns in cases when the positive relative adjective is in the attributive position. The head noun in an attributive construction can introduce a CC – a tall 3-year-old is usually shorter than a tall basketball player. However, as the following example from (Kennedy, 2007) (traced back to Boguslawski 1975) shows, this effect is not obligatory in attributive positives, while the effect of the *for*-phrase on CC is obligatory:

$$(13) \quad \text{Kyles car is an expensive BMW, though its not expensive for a BMW. In fact, its the least expensive model they make.}$$

This can be seen as an argument in favour of a compositional role of CC *for*-phrases in the semantics of POS – thus, a CC argument of POS should be introduced:

$$(14) \quad \llbracket \text{POS} \rrbracket_{\langle \langle et \rangle \langle d, et \rangle et \rangle} = \lambda C_{\langle et \rangle} \lambda G_{\langle d, et \rangle} \lambda x_e. \mathbf{max}(\lambda d. G(d)(x)) > \mathbf{norm}(G)(C)$$

The solution in (14) captures the standard-affecting behaviour of CC *for*-phrases, but doesn't say anything about the second property of CCs mentioned above – the presupposition of inclusion between the subject and the CC. There are two potential routes to take – first, one could keep the analysis in (14) and add a presupposition on top of it; second, one could argue that the above analysis cannot capture the presuppositional properties of CC *for*-phrases in a principled way and develop a new analysis that would be tailor-made to capture this behaviour. Both ways are attested in the literature.

The analysis found in (Solt, 2011) explores the first possibility. Ignoring the details of the standard-calculating function Solt proposes, her entry for POS is not so different from what we had in (14), modulo the requirement that the subject belong to the CC (the presuppositional part that states this inclusion requirement is underlined):

$$(15) \quad \llbracket \text{POS} \rrbracket_{\langle \langle et \rangle \langle d, et \rangle et \rangle} = \lambda C_{\langle et \rangle} \lambda G_{\langle d, et \rangle} \lambda x_e : \underline{C(x)}. \mathbf{max}(\lambda d. G(d)(x)) > \mathbf{norm}(G)(C)$$

To sum up, the degree complement analysis captures the standard-affecting and presuppositional behaviour of the CC *for*-phrases in the following way: the CC *for*-phrase is an argument of the degree head POS, which passes it to the standard-calculating function as an argument; the presupposition that the subject is a member of the CC set is introduced as part of the lexical semantic of POS.

The second option would be giving up the degree-complement analysis altogether instead of supplementing it with a presupposition requirement as part of POS. This is indeed the route some analyses take, as discussed below.

4.2.4 The domain-restricting analysis

A view alternative to the degree-complement analysis is proposed in (Kennedy, 2007). According to his analysis, the CC *for*-phrases are a kind of modifier combining with the gradable adjective and restricting its domain, so that *tall for a basketball player* would be semantically the same as *tall* but applicable to basketball players only. I am using the measure function (type $\langle e, d \rangle$) semantics for gradable adjectives – the semantics that Kennedy (2007) himself uses. The analysis below could be reformulated in the gradable predicate (type $\langle d, et \rangle$) semantics, but in a bit of a clumsy way, so I stick to the $\langle e, d \rangle$ notation in reporting the domain-restricting analysis. The denotation below describes a measure function associated with the height scale such that it can only take an individual as its input if this individual belongs to the class of basketball players:

$$(16) \quad \llbracket [_{AP} \text{ tall for a basketball player}] \rrbracket = \lambda x : \text{basketball-player}(x). \text{tall}(x)$$

This accounts straightforwardly for the presupposition induced by the CC *for*-PP – if the derived function *tall for a basketball player* can only combine with the individual which is a member of the CC, then, as a felicity condition on using this expression, the subject has to belong to this set. This derives the presupposition that if John is tall for a basketball player, he is indeed a basketball player.

An additional argument for this kind of analysis comes from the observation that CC *for*-phrases might not be related to the positive morpheme as closely as has been thought before. The relevant case concerns the acceptability of CC *for*-phrases in the comparative construction, as discussed in (Bale, 2008, 2011):

$$(17) \quad \text{Mary is taller for a woman than John is for a man.}$$

If these *for*-phrases could only be introduced as arguments of the positive morpheme, their acceptability in comparative constructions as in (17) would be a mystery.

The other property of CC *for*-phrases – their effect on the standard in the positive construction – is derived by Kennedy (2007) as a less straightforward effect, compared to the classic analysis described above. Let's follow the analysis to see how the effect is achieved.

First, as Kennedy (2007) assumes that gradable adjectives lexicalize measure functions, he suggests that CCs restrict measure functions. Thus, *tall for a basketball player* would denote a restricted measure function. Then, by assumption, the standard degree used by POS is calculated based on this new restricted measure function f :

$$(18) \quad d_{ST} = \mathbf{norm}(f), \text{ where } \mathbf{norm} \text{ yields a mean, median, or 'significant' degree with respect to the domain of its (basic or restricted) measure function argument } f.$$

In this way, the desired effect on the standard of the positive morpheme is achieved: it is clear that, for example, a **mean** calculated for the heights of all men would be different compared to the same measure calculated for the heights of basketball players.

Bale (2008, 2011) suggests a refinement to this analysis. The motivation for a refinement is twofold: first, looking at *for*-phrases in comparative constructions, like that in (17), Bale observes that its interpretation is not predicted by the analysis restricting measure functions. If *tall for a woman* or *tall for a man* denoted the same measure function as *tall*, except with a restricted range, the output of all these measure functions would be of the same kind – the height of the subject individual in meters (or centimetres, or inches, etc.). So, if John’s height is 1.80 m, his height-for-a-man is 1.80 m as well – the same for Mary being 1.65 m tall(-for-a-woman). Thus the sentence (17) under this analysis would only be true if Mary’s actual height in meters exceeds John’s height. However, this is not the meaning that this sentence conveys. Rather, what it seems to say is that Mary’s position within the range of women is higher with respect to tallness than John’s position within the range of men. In fact, the adjectives don’t even have to coincide, and could refer to totally different scales:

(19) John is more beautiful for a man than Mary is intelligent for a woman.

Clearly, what is compared in both of these cases is the position of the subject within the range rather than the absolute value on the scale referred to by a gradable adjective.

A related fact that points in the same direction does not come from Bale’s work, but is relevant for the issue discussed there. Sassoon and van Rooij (2012) and McKinney-Bock (2013) observe that measure phrases are incompatible with CC *for*-phrases:

(20) *John is 6 feet tall for a basketball player. (after McKinney-Bock 2013)

Indeed, if everything except the narrowed domain of the gradable adjective remains the same, differences in the behaviour of the degree head are unexpected.

The solution that Bale proposes requires a bit more background on the nature of scales. Scales can be thought of as derived from quasi orders (or preorders). Quasi orders are binary relations that are transitive, reflexive, not antisymmetric (if Bill and John have the same height, then $\langle b, j \rangle$ and $\langle j, b \rangle$ will both be members of the relation TALL):

(21) TALL = $\{ \langle x, y \rangle : x \text{ has (at least) as much height as } y \}$

The scales can be built from these relations with three steps. First, the domain is created by collapsing all sets that are reciprocally related to each other (say, all elements with the same height) into ‘equivalence classes’. Second, the equivalence classes are ordered based on the quasi ordering in the original relation. Finally, a measure function is defined by mapping every element to its equivalence class. This mechanism of building a scale was originally proposed in (Cresswell, 1977) for scales that are not conventionally associated with measure units (like beauty or laziness), but Klein (1991) and Bale (2006, 2008) have argued that it can be fruitfully extended to dimensional adjectives like *wide* or *tall* if measurements are included in the original quasi order (e.g., 1.80 m along with John).

The above mechanism allows Bale to formulate an alternative way of implementing the domain restriction view on CCs. Instead of simply restricting the domain of the measure function, the CC could restrict the quasi order before the formation of the

scale (in Bale's notation, \uparrow stands for 'restricted to'):

- (22) Where R is a binary relation and C is a comparison class,
 $R \uparrow C = \{\langle x, y \rangle : \langle x, y \rangle \in R \ \& \ x, y \in C\}$

An example of how this idea works is given below:

- (23) a. John is tall for a basketball player.
 b. $\mu_{\geq \tau}(j) >_{\tau} d_{ST}$, where $\tau = \text{TALL} \uparrow C$; $C = \{\lambda x : \text{basketball-player}(x)\}$

\uparrow restricts the relation to pairs consisting only of members of the CC. The resulting scale will thus also only consist of equivalence classes that contain CC members. In this way, the presupposition is accounted for. The effect on the standard of comparison is accounted for in more or less the same way as when the CC restricts the measure function.

To sum up, there are two major classes of theories that aim to account for the two defining properties of CCs and CC *for*-phrases – their presuppositionality and their effect on the standard of comparison. The first class of theories treats CC *for*-phrases as complements of the degree head POS – the effect on the standard is straightforwardly encoded in the semantics of POS, and the presupposition is written up in POS as well. In the alternative theories, which offer what seems to be a more explanatory account of the presuppositional facts, the *for*-phrase combines with the adjective – most likely, as some kind of a modifier – and has a domain-restricting function.

Basically, both classes of theories cover the core facts of CC PPs – presuppositionality and the effect on the standard of comparison. An advantage of the domain-restricting theory is that it covers the cases in which the CC *for*-phrases appear in the comparative rather than in the positive construction, as in (17). However, it is not clear if the comparative CC *for*-phrases are fatal for the degree-complement analysis. One could think of some adjustments which would allow for the degree-complement analysis to account for the comparative CC *for*-phrases as well. First, the problem exists only if one assumes that the degree projection contains only one degree head, and thus the positive morpheme is incompatible with the comparative one. There are accounts that have multiple degree heads in the structure of degree constructions (see below for a structure of the extended degree phrase argued for in Fults 2006). Second, the comparative constructions with the CC *for*-phrases are often judged as marked, and thus, they might be considered either cases of secondary coercion of a non-gradable predicate to a gradable one (as in something like *a very wooden house*), or a case of a metalinguistic comparison (Morzycki, 2010; Giannakidou and Yoon, 2011). I won't work out these lines of possible extensions of the degree-complement analysis here, but I want to point out that the incompatibility of the degree-complement analysis with the uses of CC *for*-phrases in comparatives is most likely an illusion.

The intermediate conclusion is that it is very hard to tell between these theories on purely semantic grounds, as the set of semantic facts both theories are designed to capture is basically the same (under the assumption that one could come up with the extension of the degree complement theory capturing the facts from comparatives). Moreover, the new data I will be discussing won't help tell between these two theories

either. Rather, these data will prove problematic for both theories. However, I will use just one of them to show how the construction would work with my refinements. It is more or less unimportant which theory I choose – however, there are syntactic facts which have been largely disregarded in the discussions on the semantics of the CC construction. These facts are discussed in (Fulst, 2006) and they suggest that the degree complement analysis is to be preferred if one wants to be realistic about the syntax of the construction. I will briefly sketch the facts regarding the (external) syntax of the CC *for*-phrases below, summing up Fulst's argument. After this, I introduce new observations which would not straightforwardly fit the existing picture.

4.2.5 The syntax of CC *for*-phrases (Fulst, 2006)

In his 2006 dissertation, Fulst uses a variety of syntactic tests to clarify the position of CC *for*-phrases (among the other 'standard'-expressions). He argues for the conclusion that these *for*-phrases behave like syntactic arguments inside an extended DegP, but at the same time, they are not arguments of the adjective itself. Thus, they are arguments of a degree morpheme found in the positive construction – namely, a POS morpheme. Let's consider his data.

First, an analysis according to which *for*-PPs are sentence level adjuncts has to be critically evaluated. Such an analysis might seem plausible given a certain ease of mobility of these PP's – they can be pronounced in various positions in a sentence:

- (24) a. John is quite **tall** [for a wrestler].
 b. John is, [for a wrestler], quite **tall**.
 c. John, [for a wrestler], is quite **tall**.
 d. [For a wrestler], John is quite **tall**.
- (25) [For a ballet dancer], Bill said he believes Mary is **heavy**.

However, as Fulst observes, this mobility is restricted by the island constraints on movement (here illustrated with Sentential Subject Island and Relative Clause Island):

- (26) **Sentential Subject Island**
 a. [That Mary is heavy [for a ballet dancer]] annoyed Bill.
 b. *[For a ballet dancer], [that Mary is heavy --] annoyed Bill.
- (27) **Relative Clause Island**
 a. Bill saw [the woman [who is heavy [for a ballet dancer]]].
 b. *[For a ballet dancer], Bill saw [the woman [who is heavy --]].

These examples show that the *for*-phrase does not originate at sentence-level – rather, it moves to this position from somewhere lower in the structure, and when a movement is attempted from a site within an island, it results in ungrammaticality.

Furthermore, Fulst shows that *for*-PPs form a constituent with the gradable adjective, as they can be fronted together:

- (28) a. John is tall for a wrestler, and tall for a wrestler he should be considering

- wrestlers are usually so short.
- b. Tall for a BASKETBALL player, he is NOT. But he IS tall for a BASEBALL player.
 - c. It's surprising how tall for a basketball player he actually is.

CC *for*-phrases pattern with arguments rather than with adjuncts with respect to several properties discussed by Fults. First, it is known that adjuncts exhibit much harsher *wh*-island violations than arguments do (Lasnik and Saito, 1992). And indeed, out of all island violations, only *wh*-islands allow extraction of *for*-PPs with a marginally acceptable result:

(29) ?It was [for a ballet dancer] that Bill wonders [whether Mary is heavy __].

As a further difference between arguments and adjuncts, Fults considers the known fact that extraction out of arguments of NPs and APs is licit, but extraction out of adjuncts of NPs and APs is disallowed:

- (30)
 - a. Who did John read [a book by __]?
 - b. Which subject did John read [a book about __]?
 - c. Who is John [proud of __]?
- (31)
 - a. *How many chapters did John read [a book with __]?
 - b. *Which library did John read [a book in __]?
 - c. *What is John [proud within __]? (proud within limits)

Extraction from *for*-PPs is possible – therefore, Fults concludes that *for*-PPs are arguments rather than adjuncts:

(32) What kind of athlete is John tall [for __]?

Furthermore, adjuncts famously can be swapped around, but cannot appear between a head and its argument:

- (33)
 - a. John ate [_{arg} an apple] [_{adj} yesterday].
 - b. *John ate [_{adj} yesterday] [_{arg} an apple].

With (34), Fults shows that an adjunct cannot appear between the adjective and the CC *for*-PP, which suggests that the *for*-phrase is an argument rather than an adjunct:

- (34)
 - a. Mary was tall [_{cc-pp} for a woman] [_{adj} back then].
(Today she wouldnt be considered tall anymore.)
 - b. *Mary was tall [_{adj} back then] [_{cc-pp} for a woman].

Finally, Fults clarifies what *for*-PPs are arguments of – the gradable adjective itself or some silent functional head above the adjective. To answer this question, Fults suggests to look at *as*-phrases with adjectives like *skillful*:

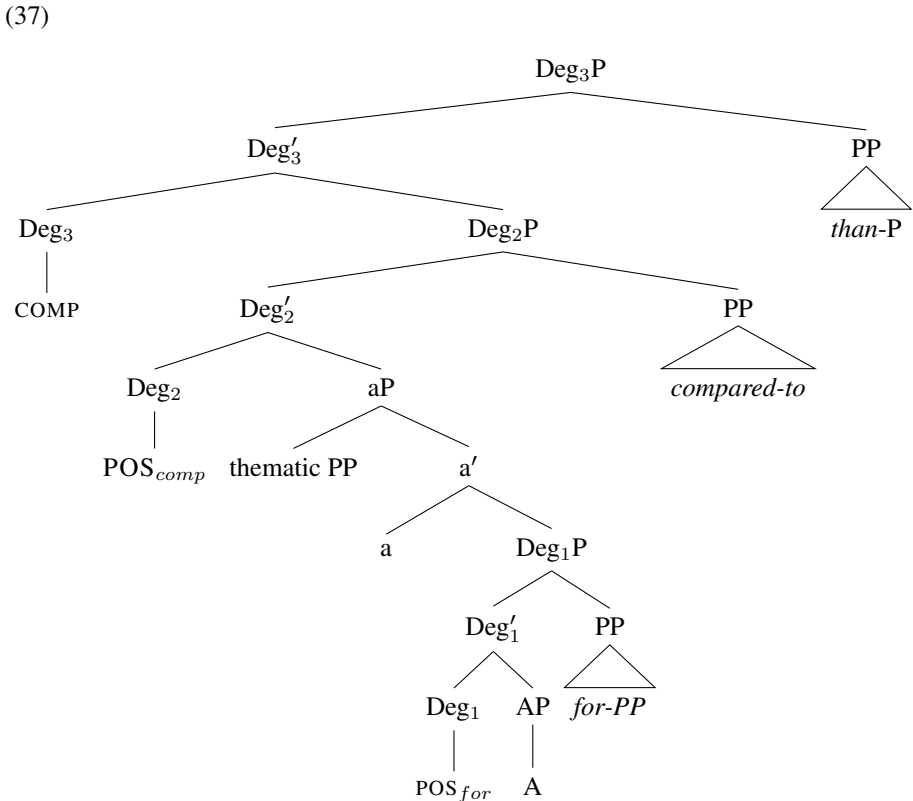
- (35)
 - a. Alexander is skillful as a cook.
 - b. Olga is beautiful as a dancer.

- c. Sylvia is fierce as a debater.

According to an analysis in (Larson, 1998), adjectives like those in (35) modify an event variable introduced by the noun in the *as*-PP. However, these adjectives are also gradable and can occur with *for*-PPs. When the two PPs co-occur, *as*-phrases must occur between the adjective and the *for*-PP:

- (36) a. Alexander is very skillful as a cook for a linguist.
- b. ??Alexander is very skillful for a linguist as a cook.

Given the assumption that adjuncts shouldn't appear between a head and its internal argument, *as*-PPs have to be treated as internal arguments of the adjective, while *for*-PPs shouldn't. This makes Fults conclude that *for*-PPs are not introduced by the adjective itself as its argument, but have to originate in one of the higher projections in the DegP. The structure that Fults motivates for a bigger DegP is shown in the tree below:



Thus, according to Fults (2006), (a) each type of standard expression (*for*-PPs, *compared-to* phrases, and *than*-phrases) is introduced by a different functional head / morpheme outside of the AP; (b) the functional morphemes are ordered such that the morpheme that introduces the *for*-PP is closest to the adjective of all the standard-

expressions.

The picture that results from the syntactic investigation conducted by Fults is only compatible with one of the two views on CC *for*-phrases described in the previous section – namely, the view that these PPs are arguments of a positive morpheme POS. The other view – that CC *for*-PPs are domain-restricting modifiers of the adjective – contradicts the evidence that these PPs do not combine directly with the adjective, and, most importantly, that they behave like arguments rather than like adjuncts. Note also that this structure allows for compatibility of CC *for*-phrases with a comparative morpheme and *than*-phrases, although more work needs to be done to assign semantics to these combinations.

The discussion in this section serves the following two goals: first, it motivates my choice of theory for the external syntax and semantics of CC *for*-phrases which I will illustrate my analysis with; second, it helps me set the stage for the puzzle I present below. Namely, even though, syntactically, CC *for*-phrases act like arguments, as shown by Fults (2006), the facts I discuss in what follows group these phrases with predicative DPs rather than with arguments (or adjuncts), which is puzzling for any of the theories of CCs on the market. I will suggest that the problematic facts can be accounted for by the combination of two moves: by assigning a clausal internal structure to the CC *for*-phrases and by modalizing the CC set to a possible world. The former move is going to be the core issue this chapter puts forward and which I am going to critically review at the end of the chapter. I will show that this suggestion invites deeper questions on what counts as evidence for changes in the syntactic structure – and in which cases one should look for an explanation in purely semantic terms. I will end by saying that the current state of our knowledge is not enough to make a conclusion.

I introduce the puzzle below.

4.3 The internal structure of CC *for*-phrases

4.3.1 The preview

The analyses of CC constructions discussed so far treat CC *for*-phrases as plain PPs without going into much detail on what can appear inside these PPs. However, it's immediately clear that these PPs are a very special kind. First, the very fact that these PPs must denote a set of individuals (something that all existing theories of CC *for*-phrases assume) is quite exotic, among PPs in general and among *for*-PPs in particular. Recall the fact that at least the paradigmatic individual-denoting expressions such as deictic DPs or certain definite descriptions are banned from CC *for*-PPs but are allowed in other kinds of *for*-PPs, for example, benefactive *for*-phrases:

- (38) a. ??This boy is tall for the basketball player.
 b. ??John is smart for that boy.
- (39) I brought something for the basketball player / for that boy.

Also, unlike other PPs in general and unlike other instances of *for*-phrases in particular, the singular indefinite DPs in the CC PPs cannot get a distributive interpretation with a plural subject:

- (40) #John and Bill are tall for a basketball player.
 (41) a. John and Bill looked for a basketball player.
 b. John and Bill brought something for a friend.

The first sentence is acceptable only under the strange interpretation that John and Bill somehow together constitute one basketball player. This effect is not observed in the other *for*-phrases like in (41)– (41-a) can have a distributive interpretation according to which John looked for a basketball player, and Bill looked for a basketball player, and the basketball players are not the same for John and Bill. The same reasoning holds for (41-b). The parallel distributive interpretation for (40) would simply be that John is tall for a basketball player and Bill is tall for a basketball player without the requirement that they are **one** basketball player. Note that the predicate *tall* without the *for*-phrase gets interpreted in a parallel ‘distributive’ way without any problem:

- (42) John and Bill are tall. → John is tall and Bill is tall.

It seems to be the case that CC *for*-phrases bear a certain ‘matching’ relation to the subject, which is not a typical property of argumental or adjunct PPs in general (or DPs, for that matter) – the plurality or singularity of the subject and the DP in the *for*-phrase are in general independent:

- (43) a. #John and Bill are tall for a basketball player.
 b. #John is tall for basketball players.
 (44) a. John (and Bill) looked for a basketball player / basketball players.
 b. John (and Bill) brought something for friends / for a friend.

One further strange property of CC *for*-phrases is that, as shown in the introduction, some definite descriptions can in fact appear in them, but others cannot:

- (45) John is quite shy for the best student in his class / *the basketball player.

This behaviour is pretty much unattested in other adjunct and argumental PPs or DPs:

- (46) a. John looked for the best student in his class / for the basketball player.
 b. John brought something for the best student in his class / for the basketball player.
 c. John called the best student in his class / the basketball player.

I believe that the peculiar properties of CC *for*-phrases sketched here suggest a need for a much more careful examination of these PPs than they have been subject to. It will prove useful to go back to the basics and build the analysis of CC *for*-phrase constructions starting with the following questions: what is the semantics and syntax of CC *for*-phrases? What is their semantic type and their internal structure? How does

it fit into existing theories of the external syntax and semantics of such PPs?

Let me give a preview of the analysis that I will build step-by-step in the rest of the chapter. I will explore the possibility that the CC *for*-phrases have a clausal structure, in which *for* serves as a complementiser introducing a basic small-clause predication. The DP that we see under *for* in CC phrases, according to my analysis, is a predicate in this small clause, while the subject is the operator Op , quite like in gapped infinitival clauses and head-external relative clauses in general, according to some analyses (for details on these clauses see Chapter 3 and Chomsky 1977; Hackl and Nissenbaum 2012, a.m.o.). This operator moves to the specifier of the *for*-phrase, causing lambda-abstraction over individuals. I also suggest as part of my analysis that *for* is a modal complementiser (as argued for in different constructions with *for*, for instance, in Chierchia 1984), and thus the semantic type of the CC *for*-phrase before the operator movement would be that of a proposition $\langle s, t \rangle$, and after the operator movement – $\langle e, st \rangle$:²

(47) $\llbracket Op_i \text{ for } t_i \text{ a basketball player} \rrbracket = \lambda x \lambda w. x \text{ is a basketball player in } w$

I will finally spell out an analysis of the overall CC construction under the degree complement theory of CCs. After that, I discuss the issues that this analysis raises.

In the remainder of the chapter I will clarify the connection between the facts outlined above and the analysis previewed in the previous paragraph. The new facts that I discuss fall into three major groups. First, I introduce the facts concerning distributivity in the CCs; second, I discuss definite descriptions in the CCs. These two groups of facts will motivate a clausal structure of the CC-phrase. And, finally, I look at the facts concerning modality in the CC construction – these facts will lead me to refinements in the semantics of CC PPs. I will look at these topics in turn, showing that the DPs in the CC *for*-phrases share their properties with DPs in the predicative position. I will suggest that this parallel is straightforwardly accounted for if a clausal analysis of CC *for*-phrases is formulated, additionally supporting it with examples of CC-phrases in Japanese, which have an explicitly clausal nature. I will also motivate a modal semantics for the CC *for*-phrases that could potentially explain some puzzling behaviour of CCs in English and in Greek.

Let's now turn to the discussion of distributivity.

4.3.2 Comparison classes and distributivity

Recall the observation made above that singular indefinite DPs in the CC *for*-phrases cannot receive distributive interpretation:

²There are two potential ways of relativising a set of individuals to a possible world, arising from two potential orderings of the world and the individual argument – $\langle e, st \rangle$ and $\langle s, et \rangle$. The semantics I will motivate for the CC *for*-phrases in this chapter is very close to that of intensional properties that are usually taken to have type $\langle s, et \rangle$ rather than $\langle e, st \rangle$ (see, for example, Zimmermann 1993). I don't think the relative order of world and individual arguments is of particular importance, although the usual semantic type seems more natural. I stick to the type $\langle e, st \rangle$ in what follows to keep the parallel to the other cases of gapped clausal constituents with a complementizer *for*, such as infinitival clauses. Hackl and Nissenbaum (2012) treat those as type $\langle e, st \rangle$. See below for details.

- (48) #John and Bill are tall for a basketball player.
 ≠ John is tall for a basketball player & Bill is tall for a basketball player.

As I will show below, the lack of distributive reading in (48) is puzzling given what we know about CC *for*-phrases. The same pattern with respect to distributivity was noticed for predicative DPs in (Dotlačil, 2011). I will point out this similarity between CC *for*-phrases and predicative DPs and suggest that one might want to treat CC *for*-phrases in a way structurally similar to predicative DPs.

Certain very basic assumptions on distributivity and plurality need to be put in place before we can state the predictions and evaluate the observed facts. Following (Schwarzschild, 1996, a.m.o.), I assume that the individual domain D_e has the structure of the set of all atomic entities. Plural, non-atomic individuals are sums. For example, the conjunction *John and Bill* denotes a sum $\text{John} \oplus \text{Bill}$. Let's look at a simple sentence that doesn't involve an overt CC:

- (49) John and Bill are tall.

(49) is true if John is tall and Bill is tall. Given the usual basic semantics of the positive form of the adjective *tall*, we could try to write up a semantics for (49) in the following way:

- (50) a. $\llbracket \text{POS-tall} \rrbracket = \lambda x_e. \mathbf{max}(\lambda d. \text{TALL}(d)(x)) > d_{\text{ST}}$
 b. $\llbracket \text{John and Bill are tall} \rrbracket = \mathbf{max}(\lambda d. \text{TALL}(d)(\text{John} \oplus \text{Bill})) > d_{\text{ST}}$

But what does it really mean for a predicate *POS-tall* to hold of a non-atomic individual $\text{John} \oplus \text{Bill}$? Intuitively, it means that it holds of John and it holds of Bill. However, the semantics in (50-b) doesn't say this. To derive this intuition, it is standard to add a pluralization operator $*$ to the semantics. This pluralization operator is usually defined as closure under sum of P, excluding the empty set (Link, 1983, 1998, a.m.o.).

A plural version of *POS-tall* will now hold of a plural subject if *POS-tall* holds of each member of this plurality:

- (51) $\llbracket \text{John and Bill are tall} \rrbracket = \begin{cases} \mathbf{max}(\lambda d. \text{TALL}(d)(\text{John})) > d_{\text{ST}} \\ \mathbf{max}(\lambda d. \text{TALL}(d)(\text{Bill})) > d_{\text{ST}} \end{cases}$

The pluralization operator can come as part of the lexical meaning of predicates (in fact, according to Krifka 1989; Landman 2000; Kratzer 2008, every lexical item is born plural), or it can be introduced in the syntax to pluralize derived predicates created in syntax – in this case, it is often referred to as a distributivity operator D .³ Consider the following example, taken from (Dotlačil, 2011):

- (52) Several women wore a blue dress.

Under a distributive reading, each of the several women wore a different blue dress. The correct truth-conditions would be derived if the predicate *wore a blue dress* is

³It is not unquestionable that pluralization and the distributivity operator are exactly the same in terms of their semantics. I stick to the simple picture and refer the reader to (Nouwen, 2013) for a detailed overview.

Where does the semantics go wrong such that the derived reading is not in fact attested for the sentences with the number mismatch between the subject and the *for*-phrase DP? Are there any other cases where the systematically possible pluralization of the predicate in the scope of a non-atomic DP is blocked?

Dotlačil (2011) discusses in detail precisely the case in question – an environment in which pluralization is blocked and thus a distributive reading is not available. The case Dotlačil (2011) discusses is DPs in the predicative position. As an illustration, in the sentences below, nominal predicates cannot get a distributive interpretation:

- (58) a. #Several women I know are a pediatrician.
 b. #My friends are a really good teacher.
 c. #I consider all my students a good listener.
 d. #They seem to me to be a promising writer.

A very similar set of facts was noticed in the literature that discusses the non-homogeneity of certain nominal predicates, but an account in terms of theories of plurality hasn't been provided (Rothstein, 2001):

- (59) Spot is a dog and Max is a dog.
 → Spot and Max are a dog.

Similarly, de Swart et al. (2007) make the observation that Dutch nominal predicates have to match the subject in number:

- (60) a. Jan en Sofie zijn leraren.
 Jan and Sofie are teachers
 b. #Jan en Sofie zijn een leraar.
 Jan and Sofie are a teacher

The solution proposed in (de Swart et al., 2007) is that (60) involves syntactic agreement: 'the marked nominals *den leraar* in [(60-b)] and *leraren* in [(60-a)] have to agree in number with the subject'.

(Dotlačil, 2011) argues against an agreement analysis, giving the following counterarguments. He points out that if it's agreement, this agreement would have to be of a very specific type. Unlike in the paradigmatic cases of agreement, none of the agreement features – gender or number – really have to match. Examples of gender mismatch can be found in morphologically richer languages such as Czech:⁵

- (61) a. On byl bab-a
 he.sg.masc was.masc hag-sg.fem
 'He was a coward'
 b. Ona byla mlad-é děvč-e
 she.sg.fem was.fem young-neuter girl-neuter
 'She was a young girl'

⁵Some of the Czech examples discussed in this chapter are taken from (Dotlačil, 2011), and some were translated for me by Jakub Dotlačil. I thank Jakub for the data and interesting discussion.

In (61-a), the subject is masculine (as is the agreeing copula), but the nominal predicate is feminine; in (61-b), the subject is feminine but the nominal predicate is neuter – no matter what the gender of the subject is. The number mismatches can be illustrated in English:

- (62) a. They survive because they understand they are a team. (COCA)
 b. Those five stars are a constellation. (Schwarzschild, 1996, p. 179)

A parallel argument can be made with pluralia tantum nouns – nouns that lack singular forms and are used in the plural to refer to one object. The agreement story cannot straightforwardly account for the mismatch in number found in (63-a) (also, notice that the copula does agree with the pluralia tantum subject in number and appears in the plural):

- (63) a. These scissors are a very handy tool. (= one object)
 b. These scissors are very handy tools. (= more than one object)

The problem of the lack of distributive readings of nominals in the predicative position can be restated in a very clear way with the help of the following minimal pair:

- (64) a. Several women D (seemed to a doctor to be crazy).
 b. #Several women D (seemed to a doctor to be a dangerous patient).

(64-a) is evidence that the matrix subject can distribute over its predicate. At the same time, (64-b) – where the DP is in the predicative position of the small clause complement of *seem* – leads to the opposite conclusion. The descriptive generalisation seems to be ‘an argument cannot distribute over a clause if there is a nominal predicate embedded inside the clause that should apply to the argument’ (Dotlačil, 2011, p. 319). As a theory, this observation is quite bizarre.

Instead, Dotlačil argues that the standard assumption that DPs denoting non-atomic individuals distribute over their scope has to be revised. To give the reader some idea of the route that Dotlačil takes – he proposes that these DPs distribute only over arguments (and adjuncts) in their scope. This, according to his analysis, explains the lack of distributive readings of the nominal predicates since they are not arguments or adjuncts. In this analysis, an operator that triggers a distributive reading modifies arguments (and adjuncts) directly (δ stands for the new distributive operator):

- (65) Some women _{x} gave δ_x (a flower) to δ_x (three men) because δ_x (a shop) was nearby.

This approach has its predecessors: the similar mechanisms were used in (Choe, 1987) for Korean ‘anti-quantifiers’, (Williams, 1991) for reciprocal constructions, and (Brasoveanu and Farkas, 2009) when capturing the scope of indefinites. The technical details of a compositional implementation of this idea should not concern us here and are quite complex. Dotlačil (2011) argues that a fully compositional account it is possible under the Plural Compositional DRT framework developed in (Brasoveanu, 2007).

Returning to comparison classes – what is important for us here is that CC *for*-phrases behave quite like the predicative DPs discussed in (Dotlačil, 2011) with respect to distributivity, and not like arguments or adjuncts. Adjusting the tests probing the relation between the subject and the nominal predicate from Dotlačil’s paper, we can probe the relation between the subject of a gradable predicate and a CC *for*-phrase.

First, the number match between the subject and the *for*-phrase doesn’t look like an instance of agreement. Unlike in the standard cases of subject-predicate agreement, the gender of the subject does not have to match the gender of the DP in the CC PP. Recall the same effect in the copula construction demonstrated in (Dotlačil, 2011) for Czech:

- (66) a. Ona byla mlad-é děvč-e COPULA
 she.sg.fem was.fem young-neuter girl-neuter
 ‘She was a young girl’
 b. [Na děvče] je vysoká CC CONSTRUCTION
 for girl.neutr is tall.fem
 ‘She is tall for a girl’

Quite like was observed for the copula construction discussed by Dotlačil (2011), in the CC construction, the match in number is not as automatic as the syntactic agreement view would predict. Group nouns and pluralia tantum nouns can be used to trigger the mismatch:

- (67) a. Those five stars are quite far from each other [for a constellation].
 b. These scissors are pretty sharp [for a tool that has been used for a year already].

Thus, the behaviour of CC *for*-phrases, as revealed by its distributivity properties, is unique for arguments and adjuncts and is only attested for one more class of constituents – DPs in the predicative position. This fact could be captured in an analysis of CC *for*-phrases that would involve a clausal structure in which the DP in the *for*-phrase would occupy a predicative position. This kind of analysis would resolve an apparent conflict between CC *for*-phrases showing properties of arguments (or, in a different analysis, adjuncts) and their apparent predicative behaviour. In the analysis I formulate, the *for*-phrase as a whole is an argument (or an adjunct), but the DP inside the *for*-phrase occupies a predicative position.

Before I build such an analysis, let’s consider some facts from definite descriptions that seem to point in the same direction.

4.3.3 Comparison classes and definiteness

As has already been mentioned in the introduction and in section 4.3.1, it is not clear what kinds of DPs can and cannot appear in the CC *for*-phrase. It is a generally presupposed wisdom that only indefinite DPs can appear in CC *for*-phrases. At first glance, this seems to be true:

- (68) a. He is quite short [for a basketball player].
 b. *He is quite short [for the basketball player / that boy].

However, this generalisation is not in fact correct. In this section, I discuss one exception to this generalisation. Namely, a certain class of definite descriptions can appear in a CC *for*-phrase, as shown below:

- (69) a. John is very modest [for the best student in his class].
 b. John is quite young [for the winner of Tour de France].
 c. John is shy [for the first man on the Moon].

What the sentence in (69-a) conveys is that John is indeed the best student in his class, and that his modesty exceeds some norm – is above the mean, or median etc. – of modesty usually exhibited by students who are the best in their class; similarly for (69-b-c). This interpretation is characteristic of CC *for*-phrases (with some adjustments discussed below). But why are some definite descriptions available in the CC *for*-PPs, while others are not? What is the generalisation underlying the distinction between the two groups of definite descriptions? Is there any other construction where the same distinction is manifested? Are definite descriptions expected in the CC construction at all?

In this section, I observe that the class of definite descriptions that can appear in CC *for*-phrases is exactly the same class of definite descriptions as those that can appear in the predicative position. This discussion will require some background on the semantics of definite descriptions in general, and the semantics of definite descriptions as predicates, in particular. Let me start with the latter.

Definite descriptions as predicates

The assumption of all existing theories of CC constructions is that DPs in CC *for*-phrases denote sets of individuals and thus are of type $\langle et \rangle$ – the type presumably found in the paradigmatic predicative uses of DPs. Indeed, DPs with an indefinite article are typically found in such environments, while DPs with a definite article, again, typically, are found in argumental positions, in which they have an argumental semantic type – type e (or a quantificational type $\langle et, t \rangle$ – I will exclude the $\langle et, t \rangle$ type as a potential basic type of definite descriptions from the rest of the discussion). I illustrate this with a copula construction and a small clause complement of *seem*. The conjunction in (70-a) is used to eliminate the ‘identificational’ reading of the sentence, where, as one could argue, an individual-denoting DP is found both before and after the copula:

- (70) a. John is tall, handsome, and $\{*\text{the} / \text{a}\}$ basketball player.
 b. I consider John $\{*\text{the} / \text{an}\}$ interesting person.

However, it has been recognised in the linguistic and philosophical literature for quite a while that definite descriptions can in fact appear in the predicative position in a sentence. Strawson (1950, p. 320) remarks that definite descriptions can be used as

a predicate in a copula clause in a sense that suggests a ‘predicative’ rather than an identificational interpretation (quoted after Coppock and Beaver 2013):

[I]f I said, ‘Napoleon was the greatest French soldier’, I should be using the word ‘Napoleon’ to mention a certain individual, but I should not be using the phrase, ‘the greatest French soldier’ to mention an individual, but to say something about an individual I had already mentioned. It would be natural to say that in using this sentence I was talking about Napoleon and that what I was saying about him was that he was the greatest French soldier. But of course I could use the expression, ‘the greatest French soldier’, to mention an individual; for example, by saying: ‘The greatest French soldier died in exile’.

A straightforward formalisation of this intuition would be to say that definite descriptions can be of type $\langle et \rangle$. This analysis is supported by the fact that definite descriptions **can** in fact occur in the unambiguously $\langle et \rangle$ environments such as in the predicative position in a copula construction in conjunction with other $\langle et \rangle$ predicates (Graff, 2001) and in the complement of *consider* (Doron, 1983; Partee, 1986; Winter, 2001) – quite like in the complement of *for* in the CC *for*-phrases, as shown above in (69):⁶

- (71) a. John is tall, handsome, and the best candidate for this job.
 b. #The best candidate for this job is tall, handsome, and John.
 c. I consider him handsome / #John / the best candidate for this job.

(71) shows that a definite description *the best candidate for this job* can be used as a type $\langle et \rangle$ expression – unlike a proper name (but see Matushansky 2008 for a different analysis of proper names that assigns them type $\langle et \rangle$ in the lexicon; then the facts in (71) would have to get a different explanation).

Let’s first discuss how definite descriptions in predicative position can be analysed and then turn to the distinction between different kinds of definite descriptions – the ones that can appear as predicates and the ones that cannot, and observe that it’s the same class of definite descriptions that is found in predicative DPs and in CC *for*-phrases. Then I will discuss the consequences of this parallel for an analysis of the CC construction.

There are two potential ways to account for type $\langle et \rangle$ uses of definite descriptions. One could either say that the basic type of definite descriptions is e and then they get type-shifted to $\langle et \rangle$ in the predicative position; or, alternatively, type $\langle et \rangle$ could be considered basic, and the argumental uses of definite descriptions would have to be accounted for by type-shifting in argumental positions.

⁶An alternative solution would be to pursue a quantificational analysis of definite descriptions in the predicative position à la (Russell, 1905) and treat the examples with the copula in a way parallel to Russell’s treatment of sentences like *George IV wished to know whether Scott was the author of ‘Waverley’*. Russell (1905) explains the fact that this sentence does not imply *George IV wished to know whether Scott was Scott* appealing to scope ambiguity. For a comprehensive discussion and defence of the Russellian view see (Neale, 1990). Graff (2001) argues against the quantificational analysis of predicative definite descriptions using examples like (71).

The difference between the two approaches boils down to the semantics of the definite article. In analyses that treat definite descriptions as originally type e , *the* is a function that takes an NP of type $\langle et \rangle$ as its input and returns an individual such that it is a unique satisfier of the predicate (this function is usually called an *iota* operator, famously discussed by Partee 1986).

- (72) a. $\llbracket \text{THE} \rrbracket = \lambda P. \iota x P(x)$ (Partee, 1986)
 b. $\llbracket \text{the boy} \rrbracket_{\langle e \rangle} = \llbracket \text{the} \rrbracket(\llbracket \text{boy} \rrbracket) = [\lambda P. \iota x P(x)]([\lambda x. \text{boy}(x)]) = \iota x. \text{boy}(x)$

To get from this to the $\langle et \rangle$ meaning needed for definite descriptions in the predicative position, one of the type-shifting mechanisms has to be employed (see Partee 1986, a.o.).

An alternative approach is to treat the definite article as type $\langle et, et \rangle$ – a function that takes a set of individuals and returns the same set. Basically, its contribution would be invisible in terms of semantic type, but it would posit certain requirements on the set of individuals that it takes as its input. There are several versions of this kind of analysis differing in what the requirements on the input set should be. Depending on the views of the authors regarding the uniqueness and the existence presupposition that definite descriptions are often argued to carry, the definite article would have different requirements encoded in its semantics. For example, if definite descriptions presuppose both uniqueness and existence of the satisfier of its predicate, the requirement would be for the set defined by the predicate to have cardinality 1:

- (73) $\llbracket \text{THE} \rrbracket = \lambda P : |P| = 1. P$ (Winter, 2001)

I will adopt this version of the $\langle et, et \rangle$ THE. However, I want to acknowledge that there are other versions of type-preserving THE, in which the existence presupposition is severed from the basic semantics of definite descriptions:

- (74) $\llbracket \text{THE} \rrbracket = \lambda P : |P| \leq 1. P$ (Coppock and Beaver, 2013)

Nothing hinges on this choice for the current discussion, so I stick to the more standard entry in (73). I am not using a type-shifting analysis of $\langle et \rangle$ definite descriptions to avoid complicating the notation – the analysis in (73) treats the type $\langle et \rangle$ uses of definite descriptions as basic, and I will be dealing with type $\langle et \rangle$ definite descriptions only.

Let's now turn to the question of which definite DPs can and cannot appear in the predicative positions and / or in the CC *for*-PPs, and why.

Semantic vs. pragmatic definites

In the previous subsection I've shown the mechanisms that would account for definite descriptions appearing as type $\langle et \rangle$, which is useful for sticking to the common wisdom about CC *for*-phrases as of type $\langle et \rangle$ even when there is a definite description involved. But recall the contrast between examples (70) and (71) that have obscured the idea that all definite descriptions can have a predicate semantic type, repeated here:

- (75) a. *John is tall, handsome, and the basketball player.
 b. *I consider John the interesting person.
- (76) a. John is tall, handsome, and the best candidate for this job.
 b. I consider him handsome / the best candidate for this job.

The class of definite descriptions seems to further break down into two groups, only one of which can function as a predicate.

What are these two groups? I suggest that the division I am interested in is the same as was described in (Löbner, 1985) under the labels ‘semantic’ vs. ‘pragmatic’ definites ([±U] for ‘unique’ in later terminology used by the same author in Löbner 2011). Here is how the distinction is described: ‘there are two kinds of uses for definites. In those cases which I want to call ‘semantic definites’ the referent of the definite is established independently of the immediate situation or context of utterance [...] ‘Pragmatic definite’ NPs, on the other hand, are essentially dependent on special situations and contexts’ (Löbner, 1985, p. 298).

Certain modifiers which combine with NPs form semantic definites: ordinals, superlatives, *next*, *last*, *only*, *same*:

- (77) the {next / last / third / most successful} president of the association

But, as Löbner notes, ‘semantic definites’ are not limited to these expressions – there are semantic definites which do not include any of the items above: *the President of the US*, *the meaning of the definite article*, *the husband of late Alma Mahler*, *the winner of Tour de France*. Examples of ‘pragmatic definites’ include DPs like *the bucket*, *the tall boy*, etc.

The same distinction is discussed in (Rothschild, 2007), but in different terms. Rothschild (2007) talks about ‘role-type’ descriptions vs. ‘particularised’ descriptions. A description is a role-type description if ‘it is a part of the common ground that there is exactly one person (or one salient person) satisfying the descriptive content across a range of relevant metaphysically possible situations and that the satisfier sometimes varies from situation to situation [...] Particularized descriptions are simply those descriptions that are not role-type’ (Rothschild, 2007, p.2-3).

Some examples of role-type descriptions that Rothschild gives are *the tallest pilot*, *the president*, *the family lawyer*, etc. On the other hand, definite DPs describing general properties shared by many different individuals tend to be particularised descriptions (*the tall boy*, *the dog*, *the loose-fitting cap*); the same goes for descriptions that refer by physical location or by what the individual did at some point (*the man I met yesterday*, *the cat in the basement*).

The intuitive difference between role-type and particularised descriptions is the following: it is part of general knowledge that cities generally have one mayor, countries one president, and so on. For *the tall boy* or *the boy*, we only know that there is a single satisfier of the description by having knowledge particular to the narrow conversational context.

Judging from the descriptions and examples Löbner (1985, 2011) and Rothschild (2007) give, the terms they use (semantic definites vs. pragmatic definites and type-

role vs. particularised descriptions, respectively) are just terminological variants of each other. The distinctions these two authors describe are probably one distinction.

Concerning the linguistic reality of this difference between two kinds of definite descriptions, (Löbner, 1985, 2011; Rothschild, 2007) both refer to a Northern Frisian dialect Fering which has two definite articles – one for semantic definites (A-article *a, at*), and one for pragmatic ones (D-article *di, det*) (Ebert, 1970; Keenan and Ebert, 1973; Lyons, 1999):

In general the D-article is used where the identity of the referent is to be found by searching the spatio-temporal or textual context. The referent, or prior reference to it, is there to be picked out, and in some cases distinguished from other entities satisfying the same description... The A-article is used as a role-type one, and where, given the hearer's general knowledge or knowledge of the wider situation and of appropriate associations, the description is enough to single out the referent without the need for ostentation. (Lyons, 1999, p. 163)

Quite a similar distinction has been described for German, in which the contracted form of the preposition+article combination is possible only if the NP is semantically definite (Hartmann 1980; Haberland 1985; Löbner 1985 – see also a recent study Schwarz 2009 for a somewhat different take on the data). For example, the following contrast between *Standesamt* 'registrar's office' and *Krankenhaus* 'hospital' is due, according to (Löbner, 1985), to the fact that registrar's offices are systematically unique (on a certain administrative unit), while hospitals are not:

- (78) SEMANTIC DEFINITE
 Sie will mit ihm { *zu dem / zum } Standesamt gehen.
 'She wants to go to the registrar's office with him'
- (79) PRAGMATIC DEFINITE
 Er muß wieder { in das / *ins } Krankenhaus zurück, aus dem er schon entlassen war.
 'He must go back to the hospital from which he had already been discharged'

Finally, in some German dialects in the Rhineland there are two different definite articles – one phonetically 'weak' (with schwa in all forms), the other one phonetically 'strong' (with short tense vowels). The weak one has been argued to be used in semantic definites, while the strong one – in pragmatic definites (Hartmann, 1982; Himmelmann, 1997; Studler, 2004; Gerland and Horn, 2010).

Although the distinction between the two types of definites is clearly linguistically real, there is no sharp boundary between the two classes. The status of a definite description 'depends on all sorts of constraints, some being semantic and others belonging to other realms of life. There is a whole scale between logical necessity and near-accidentality' (Löbner, 1985, p. 298). Rothschild (2007) phrases the same observation in a slightly different way: whether a description counts as semantically or pragmatically definite (in his terms, role-type or particularised) depends on the common ground. So the distinction is not one between different types of linguistic expres-

sions, but between different types of expression/context pairs (a description like *the man from 'Apple'* would be categorised as a semantic definite if it is a designated role in a business meeting, for example). However, certain descriptions cast themselves more naturally as one sort or the other, as shown above.

With this distinction in hand, let's now turn to its relevance for the constructions we have been comparing: constructions where a DP clearly occupies a predicative position, on the one hand – and the CC construction, on the other hand, suggesting a parallel between these constructions.

Semantic definites as nominal predicates

First, I observe that the distinction between semantic and pragmatic definites plays a role in constructions where DPs appear in predicative positions. DPs that are acceptable in this position are generally semantic definites:

(80) SEMANTIC DEFINITES

- a. John is tall, handsome, and {the first man on the Moon / the winner of Tour de France / the tallest pilot in the world / the president of the US / the only man to wear pink jackets}.
- b. John became {the first man on the Moon / the winner of Tour de France / the tallest pilot in the world / the president of the US}.
- c. I consider John {the only smart person in the class, the love of my life}.

Pragmatic definites are, to the contrary, generally out in this position:

(81) PRAGMATIC DEFINITES

- a. *John is tall, handsome, and {the basketball player, the boy I met yesterday, the tall guy, the driver}.
- b. ??John became {the basketball player, the boy I met yesterday, the tall guy, the driver}.
- c. *I consider John {the basketball player, the tall guy, the smart student, the person from 'Apple'}.

The classes of DPs which are available in the copula construction in (80-a) and in the complement of *become* and *consider* are not exactly the same due to additional semantic restrictions posited by different matrix verbs. For example, *consider* subcategorises for subjective predicates, and thus something like *I consider John the president of the US* is a strange thing to say, unless, for instance, there can be different views on the correct result of the election procedure. However, all these further subcategorizations operate, by hypothesis, within the class of semantic definites, so the generalisation about the importance of semantic vs. pragmatic definite descriptions for predicate nominals still holds (more on the semantic requirements on small clause complements of matrix verbs see Matushansky 2002b).

In general, this restriction holds only for predicative DPs. Neither argument nor adjunct DP positions are, as a class, restricted to semantic definites:

(82) SEMANTIC DEFINITES

- a. John has interviewed {the only smart person in the class / the winner of Tour de France / the tallest pilot in the world}.
- b. John entered the room after {the only smart person in the class / the winner of Tour de France / the tallest pilot in the world}.

(83) PRAGMATIC DEFINITES

- a. John has interviewed {the basketball player, the boy I met yesterday, the tall guy, the driver}.
- b. John entered the room after {the basketball player, the boy I met yesterday, the tall guy, the driver}.

I don't know why only semantic definites in general seem to appear in the predicative position. An observation I want to draw the reader's attention to is that *CC for*-phrases, again quite like DPs in the predicative position and unlike DPs/PPs in the argumental or adjunct position, can contain semantic definites, but not pragmatic ones:

(84) a. SEMANTIC DEFINITES

John is very shy for {the only smart person in the class / the winner of Tour de France / (?)the tallest pilot in the world}.

b. PRAGMATIC DEFINITES

*John is very smart for {the 10-year-old boy / for the high-school student / for the basketball player}.

Recall the discussion of distributivity and CCs in section 4.3.2, where the facts on distributivity grouped CC PPs together with predicative DPs and not with argumental/adjunct DPs/PPs. The facts concerning definite descriptions that I presented above suggested the same conclusion.

None of the existing analyses can capture these facts naturally – under the degree complement analysis of *CC for*-phrases they are arguments, while under the domain restriction analysis, they are adjuncts.

As I have already announced in section 4.3.1, to capture the facts about distributivity and semantic definites, I will suggest a clausal analysis of *CC for*-phrases, in which the DP occupies a predicative position within the *for*-phrase containing a basic predicative unit – a small clause. The *for* itself would thus serve as a complementizer rather than a preposition – quite like in infinitival clauses such as *for John to read* – (see Chapter 3 for an extensive discussion of infinitival clauses and the role of *for*). The subject of this proposed clausal structure could be abstracted over by operator movement to create a predicate over individuals – the same mechanism which was involved in the derivation of *for*-infinitival clauses with gaps and a number of other gapped clausal structures, such as externally-headed relative clauses: *Op_i for John to read t_i* (again, see Chapter 3, as well as Chomsky 1977; Nissenbaum 2005; Nissenbaum and Schwarz 2009; Hackl and Nissenbaum 2012).

However, this cannot be the whole story. From what is known about CCs, they need to provide a range of individuals so that a standard can be calculated based on this range. Recall that to count as *tall for a basketball player*, an individual should

exceed a median, or mean, or some other ‘significant’ degree within the range of basketball players’ heights. At the same time, according to our semantics of predicative definite descriptions, the set that they denote is (at most) a singleton set (presupposition underlined):

- (85) $\llbracket Op_i \text{ for } [t_i \text{ the winner of Tour de France}] \rrbracket$
 is in the domain of $\llbracket \] \rrbracket$ only if $|\lambda x. \text{winner of Tour de France}(x)| = 1$;
 whenever defined, $\llbracket (85) \rrbracket = \lambda x. \text{winner of Tour de France}(x)$

If the subject is the only satisfier of the definite predicate, what would this CC mean? The semantics we have so far predicts that *John is young for the winner of Tour de France* implies that John is younger than himself (let’s choose **mean** as a standard-calculating function just as an example):

- (86) $\llbracket \text{John is young for the winner of Tour de France} \rrbracket =$
 $\mathbf{max}(\lambda d. \mathbf{young}(d)(\text{John})) >$
 $\mathbf{mean}(\lambda d'. \lambda y. \mathbf{young}(d')(y))(\lambda z. \text{the winner of TdF}(z)) =$
 $\mathbf{max}(\lambda d. \mathbf{young}(d)(\text{John})) > \mathbf{mean}(\lambda d'. \lambda y. \mathbf{young}(d')(y))(\text{John}) =$
 $\mathbf{max}(\lambda d. \mathbf{young}(d)(\text{John})) > \mathbf{max}(\lambda d. \mathbf{young}(d)(\text{John}))$

Assuming a standard mean (or median) measure trivially applies to a singleton set and just returns the degree corresponding to the member of this singleton set back as its output, the resulting semantics of the sentence in (86) would come out extremely counterintuitive – and moreover, contradictory.

I believe the solution does not affect the structural side of my analysis, but rather has to do with interpretation alone. In particular, I argue that the interpretation of CC *for*-phrases has to be modal. This will be the final step in building the analysis of CC *for*-phrases I put forward in this chapter. As a side-effect, the discussion of modality will also allow us to take a second look on the question of why only strong definites can appear in the CC construction.

After adding the modal component to the requirements on the adequate analysis of CCs with the help of English and Greek data, I formulate the final version of my take on the structure and semantics of CC *for*-phrases, and discuss some questions it raises.

4.4 The modal semantics of CC *for*-phrases

As was shown above, with the clausal internal structure of the CC *for*-phrases, the restrictions they obey can be more systematically described along with similar descriptions found in predicative DPs. In other words, if the DP in the *for*-phrase occupies a predicative position, it forms a natural group with other expressions with similar properties. However, as the last example (86) suggests, there are still some semantic issues to solve – for definite descriptions in CC *for*-phrases, the semantics comes out such that the subject has to exceed him/herself on a relevant scale, which is not only a counterintuitive semantics for the construction, but is also a non-sensical one.

But to face this difficulty one doesn't even have to consider examples with a definite description in the CC *for*-phrase. The same problem would arise even with an indefinite DP – such that it happens to have a unique satisfier in the actual world. Consider the context in which the speaker has just one son, and this son is quite tall given the heights of the other family members. Thus the speaker could utter the following:

(87) John is quite tall for a son of mine.

Following the same steps as in (86) for *the winner of Tour de France*, we would arrive at the same paradoxical conclusion: John is taller than himself. This would happen systematically for all the CC *for*-phrases that happen to pick out a singleton set in the actual world. But when one looks closer on what sentences like (87) convey, it becomes clear that they appeal to a state of affairs other than the actual one. What (87) intuitively means is that John's height exceeds the expected norm for a member of the speaker's family. Similarly, for (86), one would expect John to be older if he wins Tour de France.

Thus, I believe that the missing component of the analysis of the CC construction is modality. I suggest that the semantic type of the CC *for*-clause when *for* combines with its basic predication (*for* + *Op* a basketball player) is that of a proposition – type $\langle st \rangle$. Given this basic structure, after the operator moves from the subject position of the small clause to the specifier of the *for*-phrase causing lambda-abstraction over the subject position, the resulting semantic type of the whole *for*-phrase would be $\langle e, st \rangle$:

(88) $\llbracket [{}_{forP} Op_i \text{ for } t_i \text{ a basketball player}] \rrbracket = \lambda x. \lambda w. x \text{ is a basketball player in } w$

Under this analysis, the CC *for*-phrase denotes a set of individuals, relativised to a possible world. It is built from a small clause introduced by a modal complementizer *for* by means of abstraction over its subject.

Let's see how it solves the problem outlined above. The standard could be made to be calculated on the basis of an 'intensional' CC instead of an 'extensional' one, as before. In this case, the median (or mean, etc.) would be calculated for the set which members are collected from different worlds – restricted in some way – rather than from the actual one:

(89) a. $\llbracket \text{POS tall for a basketball player} \rrbracket_{\text{ext}} = \lambda x. \max(\lambda d. \text{tall}(d)(x)) > \text{norm}(\text{tall})(\lambda x. \text{b-player}(x))$
 b. $\llbracket \text{POS tall for a basketball player} \rrbracket_{\text{int}} = \lambda x. \max(\lambda d. \text{tall}(d)(x)) > \text{norm}(\text{tall})(\cup \{ \llbracket \lambda x. \text{b-player}(w)(x) \rrbracket \mid w \in p \})$

Let's see how we get to this result. An extensional CC is based on an extensional property *P* (say, *a basketball player*). The intensional CC would be constructed as this extensional property relativised to a possible world. As mentioned in fn. 2 above, this can be done in two ways, depending on the relative order of the world and individual argument – $\langle e, st \rangle$ or $\langle s, et \rangle$. Intensional properties, which would be a natural intensional counterpart of the extensional property that CCs have been taken to denote, are usually assigned type $\langle s, et \rangle$; however, it's not the type that I will adopt. I believe that

the difference is more technical than meaningful. I will stick to type $\langle e, st \rangle$, stressing the parallel with an $\langle e, st \rangle$ analysis of gapped infinitival clauses developed in (Hackl and Nissenbaum, 2012). This analysis makes a transparent connection to the internal structure of CC *for*-phrases (or infinitival clauses, respectively). I leave open the question of how it relates to the more familiar $\langle s, et \rangle$ type of intensional properties.

So, under the analysis developed here, CC *for*-phrases denote \mathcal{P} of type $\langle e, st \rangle$ – a set of individuals relativized to a possible world. The individuals can be accessed from \mathcal{P} by looking at a certain proposition p that would restrict the possible worlds to consider. The set of worlds to include in p can be defined by interests, or purpose, or the speaker's idea of what is normal, which would influence the counterparts included in subjective comparison class, and thus, indirectly, the calculation of the positive standard:

$$(90) \quad CC^p(\mathcal{P}) = \cup \{[\lambda x. \mathcal{P}(w)(x)] \mid w \in p\}$$

The need for intensional CCs was independently suggested in the literature here and there, although their particular implementation and the types of gradable adjectives making use of intensional CCs differ a great deal (see Sassoon and Toledo 2011; Burnett 2012). In the next subsection, I discuss new data that might constitute further evidence pointing in the same direction.

4.4.1 Greek bare nouns and derived scales

In this subsection, I discuss new data which I see as potential evidence in favour of introducing modality as part of the semantics of CC constructions. We don't have enough understanding of the facts discussed here to eliminate other potential analyses, and it might well turn out upon closer investigation that a different explanation of these facts is correct, but the analysis I suggest here is definitely a good candidate for a natural explanation, and I see it at least as a first step in the discussion of this piece of data in the context of intensionality of CCs.

The facts come from Greek and Greek bare object DPs. Greek is one of the languages with extensive and mostly obligatory uses of definite and indefinite articles. Also, quite like in other languages with articles (including French, Dutch etc., and in some cases, English – see de Swart and Zwarts 2009 for an overview), in Greek, articles can sometimes be omitted under certain conditions. Although the CC PPs are not one of these environments, there is an environment that will prove relevant for the CC construction – this environment is the direct object (Alexandropoulou, 2013). I will show that bare objects are licensed in Greek in a clause containing a CC PP.

For a subclass of verbs which can appear with a bare object, some conditions which license a bare object have to be met. It is not entirely clear what these conditions are, but one version found in the existing literature is that a modal environment can be at least one such environment. As a working hypothesis, I will take the licensing of bare objects with this particular subclass of verbs as an indication that the construction that this verb plus bare object combination appears in is indeed modal. Some extra assumptions about objects as part of derived gradable predicates will be needed to

fully understand the argumentation. I will introduce the necessary background from (Schwarz, 2010) after I present the core data.

Observe that in the following sentence, the object of the verb ‘to have’ can occur with or without an indefinite article:

- (91) O Yanis ehi (ena) akrivo kapelo.
 the John has a expensive hat
 ‘John has an expensive hat’

The optionality of an indefinite article on the object in the simple matrix clause is, in general, restricted to a class of verbs, the correct characterisation of which is beyond the scope of the current work. What is relevant is that some verbs easily allow for a bare object, while others don’t. For example, the verb ‘to read’ does not allow for a bare object in the simple matrix clause in a declarative sentence:

- (92) O Yanis dhiavase ??(ena) meghalo vivlio.
 the John read a big book
 ‘John read a long book’

Let’s now look at cases when bare objects are licensed with verbs that generally don’t allow them. This topic is still waiting for a detailed study, but preliminary observations made in (Alexandropoulou, 2013) suggest that the licensing environment for bare objects of verbs like *read* in Greek is modality ((93) from Alexandropoulou 2013):

- (93) I Sofia meta to atihima ehi dhipla sto krevati tis ena
 the Sophia after the accident has next.to in.the bed of.her.CL a
 mihanima pu yirizi tis selidhes, **ya na bori na dhyavazi**
 machine that turns the pages for to can.SBJV.3SG to read.SBJV.3SG
 vivlio.
 book
 ‘After the accident Sophia has a mechanism next to her bed, which turns the pages, so that she can read a book.’
 (adapted from the HNC)

In (93), ‘book’ appears in the scope of a possibility modal, which, by hypothesis, licences the omission of the article.

Returning to our main issue, let’s see what happens if a CC PP is added to the sentences in (91) and (92). For verbs that allow both for a bare object and a marked object (like ‘have’), the bare option is preferred (the judgements are somewhat vague with respect to acceptability of the marked form, but the preference seems clear).⁷

- (94) O Yanis ehi (?ena) akrivo kapelo ya aghori trion xronon
 the John has a expensive hat for boy 3.GEN year.PL.GEN
 ‘John has an expensive hat for a 3-year-old boy’

⁷I thank Stavroula Alexandropoulou for suggesting to look into Greek data, as well as for translations, judgements, and discussion. All mistakes and misinterpretations are, of course, my own.

Interestingly, verbs that generally do not allow bare objects, also prefer to drop the article when a CC PP is added:

- (95) O Yanis dhiavase (?ena) meghalo vivlio ya pedhi trion xronon.
 the John read a big book for child 3.GEN year.PL.GEN
 ‘John read a long book for a 3-year-old child’

I suggest an interpretation of the contrast between sentences with and without CC PPs in Greek which refers to modality as a relevant factor. According to this suggestion, the CC construction is a modal construction. In what follows, I will be more precise about how these object DPs in Greek participate in the modal semantics of these sentences. I want to point out here, however, that I don’t want to say that the object in sentences like (95) are *c*-commanded by a modal operator – and thus, by ‘licensing’ I don’t mean structural licensing, which would be a particular structural configuration with an operator in a sentence. Clearly, this is not the case in (95), where the modal CC phrase doesn’t *c*-command the object under any of the existing analyses. Rather, I will suggest that the object, as part of a derived predicate, will have to be interpreted across situations or worlds (in situations/worlds differing from the world/situation of evaluation). This interpretational property, according to my suggestion, is enough for the use of a bare object with Greek verbs like *read*.

To explain what is going on in sentences like (94) and (95), let’s take a closer look at these examples of CC constructions. Consider the following parallel English example discussed in (Schwarz, 2010) and briefly mentioned in the introduction to the current chapter:

- (96) John has an expensive hat for a 3-year-old.

Clearly, (96) is an instance of a CC construction. The *for*-phrase provides a range within which the subject of the sentence (John) is located on a certain scale. The presupposition between the subject of the sentence and the CC holds as well:

- (97) #John, a teenager, has an expensive hat [for a 3-year old].

But what is the gradable predicate that provides a scale for the CC construction? There is a gradable predicate in this sentence (*expensive*) but it does not relate John and other 3-year-old kids to any price directly. Rather, the gradable predicate we are dealing with in these English and Greek examples is a derived one, something like *to have a d-expensive hat*. Indeed, if John is compared to other 3-year-old kids with respect to the **price of the hats they have**, John would appear somewhere in the upper part of the range. This is what (96) intuitively means.

(Schwarz, 2010) proposes to derive this larger gradable predicate by moving the POS morpheme from its base position to the position right below the subject. POS leaves a trace of type *d* in its base position and causes lambda-abstraction over degrees right below its landing site:

- (98) John POS [λd [has a [*d* expensive] hat] [for a 3-year old]].

This kind of syntactic solution is motivated by observations that the hypothesised movement of POS is blocked if it has to cross the boundary of a syntactic island – for example, the boundary of a relative clause (Schwarz, 2010):

- (99) a. #John has a hat that is expensive [for a 3-year old].
 b. *John POS [λd [has a hat [that is [d expensive]]] [for a 3-year old]].

A further argument for a movement analysis of these examples that Schwarz (2010) offers has to do with sentences of the following kind:

- (100) John wants me to talk loud [for a vocal coach].

(100) is ambiguous. It can be read as presupposing that the speaker is a vocal coach or that John is a vocal coach. This is predicted, as POS is expected to have two possible scope positions – and the DP it lands under is going to be the subject of the derived gradable predicate:

- (101) a. John want [me POS [λd [talk [d loud]] [for a vocal coach]].
 b. John POS [λd [want [me talk [d loud]]] [for a vocal coach]].

Given this analysis, the object of ‘have’ in (98) is part of the new derived gradable predicate $\lambda d \lambda x.x$ has a *d-expensive hat*. The same reasoning holds for examples with other verbs such ‘read’ in sentences like *John read a long book for a 3-year-old*, which contains a derived gradable predicate $\lambda d \lambda x.x$ read a *d-long book*. For Greek data, I concentrate on verbs like ‘read’ and set aside the verb ‘have’, as it’s the licensing conditions for bare objects of the Greek analogue of ‘read’ which I will use as indirect evidence in favour of a modal analysis of the CC construction.

The need for a derived gradable predicate itself does not explain why bare nouns are licensed in these cases in Greek. I propose that the reason articles can (and, in fact, are preferred to) be omitted in the CC construction with derived gradable predicates is the modality of the construction. The gradable predicate plays two roles in the interpretation of the CC construction. First, it is used to assign a degree to the subject in the world of evaluation, which is, in simple cases, the actual world (i.e., the degree John has according to the price of his hat in the world of evaluation w). Second, the gradable predicate is used to assign degrees to members of the CC when calculating the standard degree. In the case of the extensional CC, this is also done for the world of evaluation only (I represent it here as a parameter of the interpretation function):

- (102) \llbracket John read a long book for a 3-year-old $\rrbracket_{ext}^w =$
 $\max(\lambda d.$ John read a *d-long book in w* $) >$
 $\text{norm}(\lambda d \lambda x.x$ read a *d-long book in w* $)(\lambda x.x$ is a 3-y-o in $w)$

However, if we switch to intensional CCs, the situation changes. The second point where the gradable predicate enters the picture in the interpretation of the CC construction would now involve the interpretation of the predicate across worlds. The degree that this gradable predicate would relate an individual to would have to be relativised to a world the individual is taken from. The standard-calculating function

would have to pair the world that the individual from a CC belongs to and the world that the gradable predicate is interpreted in. Consequently, in (102), a member of the CC in one of the possible worlds would have to be paired with a book in the same possible world.

Let me quickly illustrate this with a couple of more transparent cases. Recall the example *John is tall for a son of mine* uttered by somebody who has only one son. As argued above, the interpretation of this example involves a modal comparison class – the set of speaker’s sons in worlds in proposition p . Clearly, the gradable predicate *tall* has to apply to these ‘potential’ sons not in the actual world, where they fail to exist, but in the world these individuals are taken from. If the gradable predicate could only apply to objects in the actual world (or the world of evaluation), the only value it would give to the **norm** function that calculates the standard would be the height of the speaker’s son in the actual world, and the extensionality problem of CCs would re-emerge. With an intensional interpretation of the gradable predicate the problem is solved.

Consider one more example which was already discussed above – *John is young for the winner of Tour de France*. Let’s assume again that the CC here is the set of winners of Tour de France collected from different worlds or situations beyond the actual one. How do we measure their age in order to calculate the standard? At least some of the members of this CC exist in the actual world as well, but became the winners of Tour de France many years ago. The application of the predicate *young* clearly shouldn’t happen with respect to the time of the utterance situation, but rather around the point where the individual became the winner of Tour de France. Working this out in enough formal detail would take us too far afield and would involve treating times and situations properly, but what is said here is enough as an intuitive hint in the direction of the intensional interpretation of the predicate – it applies to the member of the CC in the world (or situation) this member is taken from, measuring the degree it has on some scale in that world (or situation).

Formally capturing this pairing between a world in the gradable predicate and a world in the intensional CC is not straightforward, and I leave working out this formalisation as a loose end for future research, as nothing crucially hinges on it here. The issue with formalising this intuition boils down to how the standard-calculating function **norm** works. So far, it took two independent arguments – a gradable predicate and a CC. One modification which would give the result needed would be to collapse these two arguments into one to make sure that there’s only one possible world involved at a time. As one possible solution, the CC could serve as a domain restrictor of the gradable predicate which gets evaluated in all p -worlds:

$$(103) \quad \llbracket \text{John read a long book for a 3-year-old} \rrbracket_{int}^w = \\ \mathbf{max}(\lambda d. \text{John read a } d\text{-long book in } w) > \\ \mathbf{norm}(\cup\{\lambda d \lambda x : x \text{ is a 3-y-o in } w'. x \text{ read a } d\text{-long book in } w' \mid w' \in p\})$$

Whatever the formal solution, what is important at this point is that the object of the verb in these cases would be indirectly interpreted across worlds (in what follows, I stick to the more compact notation I had before, ignoring the intensionality of the grad-

able predicate). Thus, under a modal analysis of the CC construction, the Greek facts get a natural explanation – by hypothesis, at least one of the licensing environments for bare objects of certain Greek verbs is modality, and, according to my analysis, the CC construction is modal, as I have proposed based on different data in the previous section independently as well. However, Greek data add something to our knowledge about modality in the CC construction which wasn't apparent before. First, CCs are modal even if they don't have to be. I have argued that modality is needed in the interpretation of CCs that are in a sense defective – CCs that have only one member in the world of evaluation, either coincidentally or by virtue of the requirements of the definite article. If my analysis is correct, Greek data show that the modal interpretation is not a 'last resort' – rather, it comes into play whenever a CC construction is formed. In none of the Greek examples above was it the case that the CC set has to be singleton in the actual world or the world of evaluation – but still the modal interpretation was in place. Second, there is a difference between the covert and explicit CCs in Greek – the modal interpretation of the construction is forced by the presence overt CC PP rather than by the very fact of CC-relativity, presumably playing a role whenever a positive form of the dimensional adjective is present. Thus, the result of this section is that modality in the CC construction is not only possible, but necessary – and it is introduced by an overt CC PP. I want to point out that the suggestion I make here is a first attempt to analyse the new Greek data on bare objects in the CC construction, and I hope that future work will shed more light on these facts. However, I take it to serve as indirect evidence in favour of the modality of the CC construction.

With this result in hand, I now return to the question why only semantic definites are possible in the CC *for*-phrases – this is the point where the observations about semantic vs. pragmatic definites meet observations about modality.

4.4.2 Back to semantic definites: interaction with modality

As I have shown in Section 4.3.3, only semantic definites can appear in the CC *for*-phrases. On the face of it, it's a rather strange restriction. Intuitions about the semantics of the CC construction suggest that it needs a range to locate the subject within – a range of basketball players, 3-year-old kids, etc. Given this intuition, it's a mystery why there would be a filter that allows only for descriptions with the strongest uniqueness requirements – only descriptions that pick out singleton sets systematically, across worlds and situations are the ones that can be found in CC *for*-phrases. How could this apparent conflict between the range requirement and strong uniqueness requirement be reconciled? It will prove useful to look at the interaction between different definite descriptions and modality.

It is a well-known fact at least since (Kripke, 1980) that definite descriptions can exhibit narrow-scope readings with respect to modal operators, while proper names cannot (along with some other definite descriptions, such as deictics):

- (104) a. Mary-Sue could have been married to the president.
 b. Mary-Sue could have been married to Grover Cleveland.

(104-a) has two readings – according to the one, the identity of the individual satisfying the description *the president* varies from world to world, and thus in different worlds Mary-Sue marries different people; under the other reading, *the president* is interpreted with respect to the actual world only. (104-b) doesn't exhibit a similar ambiguity. Oversimplifying matters, names are tags linked to individuals while descriptions are instructions for finding an individual in a given situation / world; that's why generally only the latter can pick out different individuals for different situations / worlds.

However, as Rothschild (2007) observes, not all definite descriptions allow narrow-scope readings with respect to quantifiers over worlds or situations. For example, definite descriptions differ with respect to the available interpretations in constructions with adverbs of quantification (*sometimes, usually, generally*). Adverbs of quantification can be treated as very similar to modals: while modals quantify over possible worlds, adverbs of quantification quantify over situations (a situation being something smaller than the entire world, see von Stechow 1995). Semantic definites (in Rothschild's terms, role-type descriptions) allow quantification over different satisfiers, while pragmatic definites (particularised descriptions) don't:

- (105) a. The best student is usually reclusive. SEMANTIC DEFINITES
 b. The mayor is usually a Republican.
- (106) a. The man in the car is usually nice. PRAGMATIC DEFINITES
 b. The tall soldier from France is usually violent.

(105-a-b) have two readings: a wide-scope reading according to which, for (105-a), there's one particular student, and this student often acts reclusively; and a narrow-scope reading under which most students who are the best (say in different years or classes) are reclusive. The sentences in (106) only have wide-scope readings.

Similarly, pragmatic definites do not show narrow-scope readings with respect to modal operators like *must* and *might*. Let's contrast a semantic definite *the president* in (104), where it was shown to exhibit scope ambiguity, and the following example, where the narrow-scope reading is impossible:

- (107) I might have enjoyed talking to the person fasting throughout the dinner.

Consider the context: suppose that at the party John does not eat anything, and is unique in this regard. Suppose also that the speaker has another friend, Bill, who also wouldn't have eaten anything if he had been at the party. (107) can only mean that the speaker might have enjoyed talking to John. It cannot easily express the proposition that the speaker could enjoy talking to whoever was unique in fasting at the dinner – John, Bill, someone else. So the narrow-scope reading of (107) is absent.

As a descriptive generalisation, it turns out that the narrow-scope readings of definite descriptions within modal operators are only available when the common ground – the mutual beliefs of the conversational participants – includes the proposition that, across a wide range of possible situations, the description in question has a unique satisfier.

Along these lines, Rothschild (2007) comes up with a reason for why the narrow-

readings of pragmatic definites are not possible. When a definite description is interpreted in the scope of a modal, the presuppositions it carries have to be satisfied not (only) in the actual world, but in the worlds introduced by a modal operator. Thus, in the narrow-scope reading of a definite description, the presupposition is that *across all relevant situations / worlds* there is a unique satisfier of the description. On the wide-scope reading the sentence just triggers the presupposition that in the actual situation there is a unique satisfier of the description. This is precisely the difference between semantic and pragmatic definites (role-type and particularised descriptions) – the former satisfy the uniqueness requirement systematically across worlds / situations, while the former do so only for the actual world / situation.

The above can give us a clue for a better understanding of the semantic reasons why only semantic definites can appear in the CC construction. As different evidence presented in this section shows, CC constructions are modal, and the CC-phrase itself is interpreted in an obligatorily modal way. In combination with the observation that only semantic, but not pragmatic definites can be interpreted across possible worlds, the former restriction makes more sense. I suggest that pragmatic definites cannot appear in the CC *for*-phrases because the CC PPs obligatorily take narrow scope with respect to the modal that is part of the CC construction. The modal uniqueness presupposition can only be satisfied by semantic, but not by pragmatic definites.

In the discussion section, I return to the question of how this explanation patterns with the observation I've made before that only the predicative DPs can be restricted to semantic definites.

4.5 Filling in the details: a modal clausal analysis

I have discussed several facts concerning CCs so far: first, I have shown that singular indefinite CC *for*-phrases cannot have a distributive reading; second, I have shown that only 'semantic definites' but not 'pragmatic definites' can appear in the CC *for*-phrases. Both restrictions are characteristic of DPs in the predicative position rather than of arguments or adjuncts, to the best of my knowledge. To accommodate this observation, I have proposed a clausal analysis of CC *for*-phrases, according to which a DP inside a *for*-phrase would occupy a predicate position in a small-clause-like structure.

Finally, with the help of the English and Greek data I have argued that the CC construction is modal and that this modality comes from the overt CC PP. The modal analysis sheds some light on the role of the strong uniqueness requirement on semantic definites in this particular construction – it is independently known that only semantic, but not pragmatic definites, can have narrow scope with respect to modals, as in this configuration, the uniqueness presupposition has to be satisfied across worlds / situations. This leaves open the possibility of analysing the CC *for*-phrase as a whole as an argument or an adjunct in a bigger CC-construction structure.

How linguistically real is the idea of clausal CCs? In English, all the evidence for a clause inside a *for*-phrase I've discussed so far is quite indirect (for a critical view on the evidence presented here, see the discussion section). Can we ever really see any

direct evidence for a clausal structure in a CC phrase? The analysis I've put forward predicts that there might be a language with explicit enough clause-level functional morphology to make the clausal structure visible so that an overt morpheme would mark its presence.

I suggest that this prediction is in fact borne out and this hypothesised language is Japanese, where CC DPs have a visible layer of clausal structure – namely, a morpheme *shite* (a gerund of a semantically bleached verb 'do'):⁸

- (108) John-wa [basukettobooru-senshu-ni-**shite**-wa] segataka-i
 John-TOP basketball-player-DAT-do.GER-TOP tall-PRES
 'John is tall for a basketball player'
- (109) kono [hon-wa san-sai-muke-no hon-ni-**shite**-wa] muzukashi-i
 this book-top 3-age-for-gen book-dat-do.GER-top difficult-PRES
 'This book is difficult for a book for 3-year-olds.'

The sentences in (108) and (109) both have the two core properties of a CC construction: there is a presupposition that the subject is a member of the CC set, and the subject's degree on a scale exceeds the standard defined for the CC (as a median, or mean, etc. for the CC range).

Omitting *shite* does not result in ungrammaticality, but rather forces a 'functional standard'-like interpretation, according to which the subject exceeds the maximum degree compatible with a situation or proposition made salient by the 'functional standard' DP (for more on functional standard constructions see Chapter 3):

- (110) John-wa basukettobooru-senshu-ni-wa segataka-i
 John-TOP basketball-player-DAT-TOP tall-PRES
 'John is (too) tall to be a basketball player'
- (111) ?kono hon-wa san-sai-muke-no hon-ni-wa muzukashi-i
 this book-TOP 3-age-for-GEN book-DAT-TOP difficult-PRES
 'This book is (too) difficult to be a book for 3-year-olds.'

(110) has a somewhat strange meaning according to which John's height exceeds the maximum height compatible with being a basketball player. (111) can be used in the following rather exotic context: we have several books in front of us. We know one of them is written for 3-year-old kids, but we don't know which. I think that book # 2 is too advanced for 3-year-olds, so I pick it up and utter the sentence in (111). Still, (111) would sound a bit unnatural. It might have to do with the fact that the modality involved in (111) is epistemic rather than normative, which is typically found in functional standards (see Chapter 3 for a more elaborate discussion of the flavour of modality in functional-standard constructions). I have to admit that I don't have a good explanation for the slight contrast between (110) and (111).

However, I want to point out that (110) and (111) are not just non-presuppositional

⁸I thank Yasutada Sudo for the data and for discussions of this construction in Japanese. I also want to thank Michael Yoshitaka Erlewine and Osamu Sawada for a discussion of these and related data that I presented at Sinn und Bedeutung 18 in the Basque Country.

variants of the CC construction. In these sentences, ‘basketball player’ and ‘book for 3-year-old kids’ can be substituted by deictic definite DPs that couldn’t be interpreted as CCs even under a modal analysis of CCs (as deictic definites, quite like proper names, are rigid and cannot provide a range across different worlds / situations):

- (112) John-wa kono teeburu-ni-wa segataka-i
 John-TOP this table-DAT-TOP tall-PRES
 ‘John is (too) tall for this table’
- (113) kono hon-wa kono kurasu-ni-wa muzukashi-i
 this book-TOP this class-DAT-TOP difficult-PRES
 ‘This book is (too) difficult for this class’

Adding *shite* to these diagnostic functional standard constructions results in the semantic ill-formedness of the sentence:

- (114) #John-wa kono teeburu-ni-**shite**-wa segataka-i
 John-TOP this table-DAT-do.GER-TOP tall-PRES
- (115) #kono hon-wa kono kurasu-ni-**shite**-wa muzukashi-i
 this book-TOP this class-DAT-DO.GER-TOP difficult-PRES

Therefore, I conclude that the CC construction in Japanese obligatorily involves clausal structure, marked by the overt morpheme *shite* ‘do.GER’. Omitting this morpheme is possible only to the extent that the sentence is potentially interpretable as a ‘functional standard’ construction.

Summing up, the clausal analysis for CC phrases is motivated by indirect evidence from English and Greek, and now the need for such an analysis is basically confirmed by direct evidence from Japanese, where the CC phrase is visibly underlyingly clausal. Let me now move to the section where I explicitly formulate the final version of my take on the CC construction.

4.5.1 The analysis

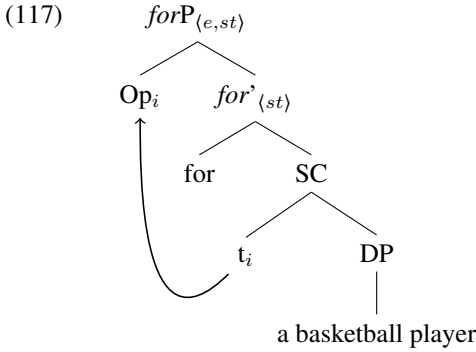
As I have said before, the CC *for*-phrase, under my analysis, would be a small clause with a modal complementizer *for*. *For* combines with a basic predication and returns a proposition of type $\langle st \rangle$. The subject position of the small clause can only be occupied by a silent operator *Op*:

- (116)
-
- ```

graph TD
 forP["forP_(st)"] --- for["for"]
 forP --- SC["SC"]
 SC --- Op["Op"]
 SC --- DP["DP"]
 DP --- player["a basketball player"]

```

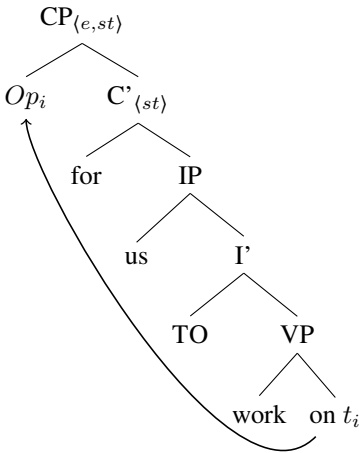
The operator moves from its base position to the specifier of the *for*-phrase, leaving a trace of type *e* and forcing lambda-abstraction below its landing site:



(118)  $[[Op_i \text{ for } t_i \text{ a basketball player}]] = \lambda x \lambda w. x \text{ is a basketball player in } w$

This kind of derivation is quite parallel to other clauses involving a complementiser *for* – for example, modal infinitival relative clauses with an obligatory gap have been analysed in quite the same manner (Hackl and Nissenbaum, 2012); somewhat simplified:

(119) Many problems [for us to work on ...].



The modal flavour of clauses with *for* as a complementizer has been studied before. Bhatt (2006) observes that only subject infinitival relative clauses (i.e. those that have a gap in the subject position) can get non-modal readings (the book that has appeared rather than should appear; the woman that went to space rather than the woman that should go to space, respectively):

- (120) a. the best book [ ... to appear on this topic until now ]  
 b. the first woman [ ... to go in space ]

Non-subject infinitival relative clauses are always modal:

- (121) This is the best book [for John to read ... on this topic].  
 ≈ This is the best book that John should read on this topic.

One of the differences between subject and non-subject infinitival relative clauses is that the former can never have an overt *for*. Bhatt's explanation for the lack of a modal reading of subject infinitival relatives is that they lack the layers of the structure that could host modality. Apparently, the positions that host modality and that host the complementizer *for* are close to each other, and one of the possibilities would be that this is one and the same position. Not arguing for a particular general solution for all CPs with a *for*-complementizer, I just want to point out that the connection between *for* and modal semantics that I am making here is not unattested outside of the CC construction.

To put the ingredients of the CC construction (degree head POS, gradable adjective, the *for*-phrase) together, we need to choose a theory of the structure and semantics of the CC construction. As I have said before in section 4.2, the observations I have made throughout this chapter would not help us decide between the two existing theories of CC constructions. Therefore, potentially, one could provide an analysis of the CC constructions incorporating my observations both under a degree complement analysis and under a domain-restricting analysis of the CC construction. I will however make use of the degree complement analysis only, as I believe it to be more in line with what we independently know about the syntax of CC *for*-phrases as discussed in (Fulst, 2006) and summarised in section 4.2.5.

Under this degree complement analysis, CC *for*-phrases are arguments of the positive morpheme POS. Let's see how the denotation of POS should look to accommodate the slightly modified semantics for *for*-phrases that I have been using:

$$(122) \quad [\text{POS}]^w = \lambda \mathcal{P}_{\langle e, st \rangle} \lambda G_{\langle d, et \rangle} \lambda x : \underline{x \in \mathcal{P}(w)}. \mathbf{max}(\lambda d. G(x)(d)) > \mathbf{norm}(G)(CC^p(\mathcal{P}))$$

The modal CC would pick its members from different worlds based on the denotation of the *for*-phrase ( $\mathcal{P}$  of type  $\langle e, st \rangle$ ) and a proposition that would restrict the worlds to be taken into consideration:

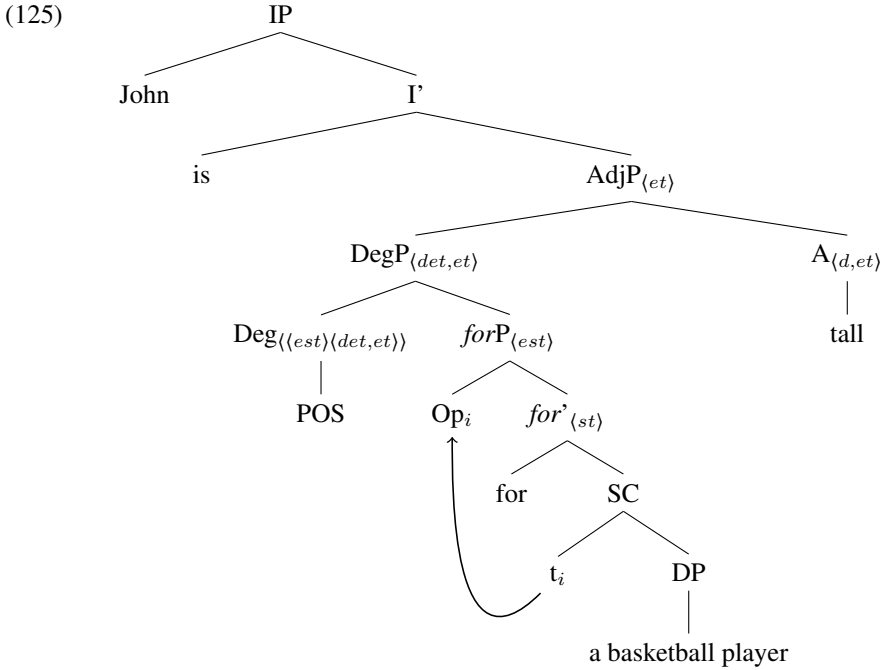
$$(123) \quad CC^p(\mathcal{P}) = \cup \{ [\lambda x. \mathcal{P}(w)(x)] \mid w \in p \}$$

Thus, POS would compare the degree the subject reaches on a certain scale in the world of evaluation to the standard based on the degrees reached on the same scale by the members of the CC set taken from different worlds in the world they are taken from. It would also introduce the presupposition that the subject is a member of the CC in the world of evaluation.

After POS combines with its first argument, the *for*-phrase, we have a denotation of the DegP:

- (124)  $\llbracket \text{POS for a basketball player} \rrbracket^w =$   
 $\lambda G_{\langle d, et \rangle} \lambda x : x \in \text{basketball player}(w).$   
 $\text{max}(\lambda d. G(x)(d) \text{ in } w) > \text{norm}(G)(\cup \{[\lambda x. \text{b.player}(x)(w')] \mid w' \in p\})$

The rest of the composition is trivial: the gradable adjective *tall* of type  $\langle d, et \rangle$  combines with DegP yielding a type  $\langle et \rangle$  expression that, finally, combines with the individual *John*:



- (126)  $\llbracket \text{John is tall for a basketball player} \rrbracket^w =$   
 $J \text{ is a b.player in } w. \text{max}(\lambda d. \text{tall}(J)(d) \text{ in } w) >$   
 $\text{norm}(\text{tall})(\cup \{[\lambda x. \mathcal{P}(w')(x)] \mid w' \in p\})$

According to the resulting semantics, the sentence in (126) is analysed in a way that makes it carry the presupposition that John is a basketball player in the world of evaluation, and asserts that John's height in the world of evaluation exceeds a certain standard defined on the basis of what is expected, or normal for height of a basketball player. This is the desired semantics that captures the intuition of the meaning of the construction.

Moreover, the analysis I give makes the facts on distributivity, Greek bare nominals, Japanese CC copula, and restrictions on the type of definites appearing in the construction expected, given this is a modal and clausal analysis. The lack of distributive readings of indefinite DPs in CC *for*-phrases and the restriction to semantic definites in the CC PPs groups them together with predicative nominals. My analysis makes this parallel an explicit structural one. The same analysis applies to Japanese

explicitly clausal CC phrases. Adding modality to a clausal analysis captures the interpretational properties of the CC constructions, eliminating malicious singleton CCs and explaining the Greek bare objects in CCs, as bare objects in Greek usually occur in modal environments. Also, this analysis fits nicely with the observation that only semantic, but not pragmatic definites can appear in the scope of modal operators.

## 4.6 Discussion

### 4.6.1 Loose ends

Closing this chapter, I would like to look a bit beyond the basic cases of the CC construction that I have analysed. In the course of the chapter, I have given some examples which I haven't returned to yet. One example involved a CC over times:

(127) This theatre is full for a Thursday.

Are these cases a problem for my analysis? It might seem so given that there is no overt DP that could serve as the subject of a gradable predicate and be a member of the CC of Thursdays, at the same time. But it is not in fact a problem as long as there is a semantic option of abstracting over the time variable. Let's adopt some very basic toy assumptions about times, giving them independent ontological reality – a separate basic type *time*. The *for*-phrase would have an operator of type *time* in the subject position of its small clause, and *Thursday* would be a predicate over times of type  $\langle \textit{time}, t \rangle$ , returning true if the point of time lies within an interval that is a Thursday. After the operator movement causes abstraction over times, the semantic type of the CC-phrase would be  $\langle \textit{time}, t \rangle$  (let's ignore modality for this example). For the correct semantics of the whole CC construction, a derived gradable predicate should be formed. This predicate should be  $\lambda d \lambda \textit{time}. \textit{the theatre is } d\text{-full at } \textit{time}$ . This result is derived by the movement of POS, motivated in (Schwarz, 2010) for cases like *John POS has an expensive hat [for a 3-y-o]*. Whether the matrix clause *time* variable gets abstracted over by movement of a T-head or the T is merged above the subject in this sentence, doesn't make a lot of difference for the analysis.

One more class of cases I have set aside so far concerns the plurality in the CC construction:

- (128) a. John and Bill are tall for basketball players.  
 b. These five stars are far from each other for a constellation.

In this chapter, I have talked about singular indefinites in the CC *for*-phrase lacking a distributive interpretation, but I haven't said anything about how the plural and group-denoting DPs are interpreted when they are found in the CC *for*-phrase. I don't have much to say about these cases. I think it is an interesting task for future study to work it out. However, I believe that these examples are of more interest for theories of plurality than for theories of gradability, as I don't see how the analysis would help decide between different theories of CC *for*-phrases.

### 4.6.2 More serious concerns

The analysis presented here captures several important properties of CC *for*-phrases. First, it captures the puzzling fact that CC phrases obey the restrictions usually observed for predicates, while being analysed in the existing theories as arguments or adjuncts. Under my analysis, the *for*-phrase as a whole is an argument (of a positive morpheme POS), while the DP that is a part of this *for*-phrase occupies the predicative position in a clausal structure inside the CC phrase. Thus this apparent conflict is resolved.

There is nothing revolutionary in postulating a clausal structure in the complement of *for* – the role of *for* as a complementizer beyond the CC construction is very well-known. The most famous instance of *for* as a complementizer is found in infinitival clauses of different kinds. However, even looking at other, seemingly phrasal, instances of *for*-headed constituents, such as benefactive *for*-phrases in sentences like *John got a book for Mary*, could reveal a clausal structure in the *for*-phrase (see Mascarenhas 2010 for a clausal analysis of such constituents).

Second, the modal component of my analysis also falls in nicely with the modal properties of phrases headed by *for* – most famously, again, *for*-infinitival clauses, but discussed for some constructions beyond that as well. Zimmermann (1993) discusses *for*-phrases as objects of verbs like *seek* and *look (for)* and argues that these phrases should be treated semantically as intentional properties.

Thus I believe that the overall analysis of the internal syntax and semantics of the CC *for*-phrases that I present here is a viable option that fits quite nicely with what we know about *for* and the complements it takes. At the same time, the motivation for the decisions I make in this chapter is substantially weakened if one critically assesses how much we know about the arguments I have presented for this analysis.

Let me start with the distributivity facts. I have observed that singular indefinite DPs in the CC *for*-phrases lack distributive readings, and in that they are quite like nominal predicates in the copula construction and like predicates of small clauses (Dotlačil, 2011). I took this parallel to have syntactic consequences – if nominal predicates occupy the syntactic position of the predicate and lack distributive readings in the examples I could find, then, as my reasoning goes, the DPs in the CC *for*-phrase must occupy the predicative syntactic position as well. However, this reasoning is only valid if it can be proven that what is relevant for the lack of distributive readings is the syntactic position of the DP. The fact is that Dotlačil's analysis of the lack of distributivity in predicative nominals is compatible with various reasons for the lack of such distributive readings. The blocking factor could indeed be syntactic in nature, but it could as well have to do with the semantic type of the DP, some operators it has to be in the scope of, or the way the DP is semantically combined with the rest of the construction. The lack of general understanding of how the copula construction works and what the requirements are on small-clause complements of certain verbs does not allow us to exclude any of these factors – it just happens so that all we see as a trigger for non-distributive interpretation is the predicative position of a DP. I believe that future research on the factors blocking the distributive interpretation of certain DPs would give us a better idea of how valid my reasoning is.

My discussion of semantic vs. pragmatic definites suffers from the same drawback. I have observed that in the CC construction, the complement of *for* can be a ‘semantic’, but not a ‘pragmatic’ definite description. The same restriction is found for the DPs in a predicative position in the copula construction and, again, for predicates of a small clause. Under the same reasoning as before, I assume that what is relevant is the syntactic position of the DP. However – and in the case of definite descriptions it is even more plausible than for the distributivity facts – this might not turn out to be the relevant factor. As the work on modality and the semantic vs. pragmatic definites shows, there is a difference between them that might account for at least a subset of the seemingly ‘syntactic’ factors governing the distribution of these two types of definites. Rothschild (2007) shows that semantic, but not pragmatic definites can take narrow scope with respect to modal operators. Independently of that, I show that CC *for*-phrases have to have a modal interpretation. Does it ruin the argument from semantic / pragmatic definites for a clausal analysis of the CC *for*-phrases? I think it at least weakens it substantially. What if the same (or independent) reason for the ban on pragmatic definites could be applied to other cases where it is attested, as well? I think the requirement for narrow scope with respect to some modal straightforwardly applies to at least some predicates taking small clauses, like *seem* or *consider*. *Seem* requires a scalar complement (Matushansky, 2002b), while *consider* is subjective – thus both involve a cross-world range of possible values of the DP description in the predicative position of their small clause. While the requirements of these two verbs might be slightly different, the complements of neither can have pragmatic definites – I believe, because the DP predicate has to be interpreted modally. The remaining puzzle is why the ban on pragmatic definites holds in a simple copula construction. I don’t have the answer to this question, but I want to stress how easily the argumentation I gave in this chapter can be reversed. I took copula constructions as a kind of a basic case to generalise from – I have observed that semantic, but not pragmatic definites can be used as a nominal predicate in the copula construction – then, I have found other cases where a DP occupies the predicative position and the same restriction holds (predicates of small clauses) – and finally, generalized one property that these constructions share to the case in question, the CC *for*-PPs. I said that the relevant property is the predicative position of the DP.

But the reasoning could go in the opposite direction as well – independently knowing that the CC *for*-phrases are obligatorily interpreted in the scope of a modal, I could confirm this as a relevant factor affecting the distribution of semantic vs. pragmatic definites looking at the complements of modal verbs *seem* and *consider* – and then finally turn to the copula sentences. I could argue that given that the obligatorily narrow scope with respect to some modal always accompanies the ban on pragmatic definites, the simple copula constructions also have to get a modal analysis. In fact, I believe that this might be a promising line of research, and I also believe that some independent factor of this sort can in the future be found for the ban on the distributive interpretation as well.

Finally, the overtly ‘clausal’ Japanese CC DPs do not force us to have a clausal analysis for English or Dutch – it would be surprising to find a total lack of cross-linguistic variation in CC constructions. Indeed, the clausal analysis of the CC-phrases

is possible, but the fact that there is a language that makes use of a clausal structure for CCs does not immediately entail that the same structure is found in all other languages. Moreover, there is an apparent argument against the predicative position of DPs in CC-phrases in Dutch. In Dutch, the predicate of the copula construction with a plural subject can be a singular bare noun:

- (129) Jan en Sofie zijn leraar.  
 Jan and Sofie are teacher.SG  
 ‘Jan and Sofie are teachers’

The same holds for predicates subcategorising for small clauses, such as *begin*:

- (130) Jan en Sofie zijn leraar geworden.  
 Jan and Sofie are teacher.SG became  
 ‘Jan and Sofie became teachers’

However, in a CC construction, a singular bare noun is ungrammatical, while the plural is fine:<sup>9</sup>

- (131) a. \*Jan en Sofie zijn jong voor leraar.  
 Jan and Sofie are young for teacher.SG  
 Intended: ‘Jan and Sofie are young for teachers’  
 b. Jan en Sofie zijn jong voor leraren.  
 Jan and Sofie are young for teacher.PL  
 ‘Jan and Sofie are young for teachers’

This difference between DPs in the predicative position and in the CC construction is unexpected under the analysis I develop here. Note that the data above constitute apparent counterexamples to the generalisation made in (Dotlačil, 2011) that singular predicative DPs cannot get a distributive interpretation. More work is needed to clarify what is going on in this case, and I leave it for future research.

The intended contribution of this chapter is not to establish the correct analysis of the CC *for*-phrases once and for all, but rather to bring in new observations that would hopefully allow us to proceed in aggregating data and approaching an understanding of both a rather small topic of CCs and – more importantly – bigger topics of the syntax and semantics of definite descriptions, distributivity, and modality. I hope that the data on CCs that I have introduced here would add to the debates on these issues.

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<sup>9</sup>I thank Henriette de Swart and Rick Nouwen for bringing this to my attention.



## CHAPTER 5

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### Conclusion

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I started this dissertation with a puzzle presented by the positive form of gradable adjectives such as *tall* or *old*. The puzzle concerned the standard of comparison such adjectives make reference to – in the case of *tall*, it's the height that one has to have in order to count as tall. As discussed in the Introduction chapter, it is extremely hard to pin down how this standard is defined. Summing up the existing linguistic and philosophical literature, it appears to be an indecomposable combination of a variety of factors such as the speaker's internal state, the facts of the world, and the linguistic context.

For the current study, I focused on three commonly discussed ingredients of the standard value of positive gradable adjectives: 1) subjectivity (or judge-dependence) of the standard (Richard, 2004; Paenen, 2011; Bouchard, 2012; Kennedy, 2012, a.o.); 2) its purpose- or interest-relativity (Fara, 2000; Fleisher, 2008, 2011, a.o.); 3) its relativity to a reference set, or comparison class (Kennedy, 2007; Bale, 2008, 2011; Solt, 2011, a.m.o.).

Crucially, I took a linguistic perspective on the topic. By this I mean that throughout the dissertation I used linguistic evidence to investigate the role of these factors in the interpretation of positive gradable adjectives. I was concerned with the mechanisms language uses to build in the information on judge-dependence, reference sets etc. rather than solely with the overall interpretational effects these factors have on the statement.

More specifically, I addressed the class of 'standard-setting' or 'standard-affecting' expressions – 'judge' PPs, comparison class *for*-phrases and 'purpose'-clauses as part of the construction with the positive gradable adjective:

(1) a. The ride was *fun for John*.

JUDGE

- b. ‘War and Peace’ is a *long* book **to read in one day**. PURPOSE  
 c. Vera is *smart* **for a 5-year-old**. COMPARISON CLASS

Probing the structure of these sentences with standard-affecting expressions, I investigated their impact on the structure and semantics of the construction. Overall, I showed the class of standard-affecting expressions is heterogeneous in terms of mechanisms of their contribution, in some cases very indirect, while the contribution of other items in this list is mistakenly severed from the domain of compositional semantics. Finally, certain types of standard-modifying constituents have a more complex internal structure than assumed in any existing analyses.

The core assumptions about gradable adjective meaning that I used as a starting point are fairly standard and are shared in some form by many semantic analyses of gradability (Bartsch and Vennemann, 1973; Seuren, 1973; von Stechow, 1984; Bierwisch, 1989; Cresswell, 1977; Heim, 1985, 2001; Kennedy, 1997, 2007; Kennedy and McNally, 2005; Klein, 1991, a.o.):

- (2) a. Gradable adjectives relate their arguments to abstract representations of measurement, or DEGREES.  
 b. A set of degrees totally ordered with respect to some DIMENSION (height, cost, etc.) constitutes a SCALE.

As a basic meaning for a gradable adjective I assumed a relation between degrees and individuals, type  $\langle d, \langle e, t \rangle \rangle$  (see Kennedy 1997; Heim 2001; Bhatt and Pancheva 2004; Neeleman et al. 2004 a.o.):

- (3)  $\llbracket \text{tall} \rrbracket = \lambda d \lambda x. \mu_{\text{tall}} \geq d$ ,  
 where  $\mu_{\text{tall}}$  is a measure function on the scale of height and  $\geq$  is a non-strict exceed relation in the domain of degrees.

Finally, as an ingredient of the positive construction with gradable adjectives, I assumed a silent positive morpheme POS as an additional step that allows the gradable adjective to predicate over individuals (Kennedy 2007 and many others):

- (4)  $\llbracket \text{POS} \rrbracket = \lambda G_{\langle d, et \rangle} \lambda x_e. \mathbf{max}(\lambda d. G(d)(x)) > d_{ST}$ , where  $d_{ST}$  is a standard degree.

As the classic entry for POS in (4) suggests, the positive standard itself – as well as the ‘judge’, or the comparison class, or the purpose – does not enter the semantics of the positive construction compositionally at any point. The standard is not an argument of POS, but is somehow picked up from the context, subsuming the information on judge-dependence, comparison classes, and purposes or interests.

In three main chapters I probed this simple view. The basic options I considered for how standard-affecting information enters the derivation were the following: 1) a ‘non-compositional’ option, in a sense that there is no silent or overt element in the LF that would introduce certain information at the point of the derivation where the standard of comparison is calculated; 2) a ‘compositional’ option – there may be a silent or an overt constituent introducing the standard-affecting information directly

in the domain where the standard is calculated either as an argument of a positive morpheme or of an adjective, or as a modifier at some level close to the adjective or the degree head.

I discussed these options for the three types of standard-affecting information introduced above: judge-dependence (or subjectivity) of the positive gradable adjectives, purpose-relativity, and comparison classes.

Chapter 2 mainly concentrated on judge-dependence as a factor that affects the interpretation of the positive construction, but also of some constructions beyond the positive, in particular, ‘modal degree constructions’ with *too / enough*.

I argued that the contribution of ‘judge’-PPs such as in *The ride was fun for John* is more indirect than usually assumed. The existing theories treat them either as judge arguments of adjectives or as shifters of the judge index of evaluation. I showed that looking at more data undermines the conclusions reached by these theories. In particular, these theories presuppose that the judge PPs are licensed in all judge-dependent constructions. In contrast, I showed that these ‘judge’ PPs (or, in other languages, DPs) are available only with a subclass of subjective predicates – those referring to an experience event as part of their semantics.

Based on this, I argued that these PPs are experiencer phrases and realise an experiencer thematic role of the adjectival predicate. Thus their availability is to an extent independent from judge-dependence *per se*. I argued that the visible dependency between the experiencer and the value of the judge parameter (that I modelled as index of evaluation) could be captured by the ‘judge=experiencer’ constraint that I proposed for a certain class of experiencer predicates. I suggested that this constraint is rooted in the problematic status of an external assertion about someone else’s non-externalizable experience.

Summing up, in Chapter 2 I suggested that the semantics of constructions with judge PPs is built up from the experiencer semantics of a predicate that licences the PP and a principle regulating which values the judge index of evaluation can take when the statement is about a non-externalizable experience event. This analysis is, I believe, more illuminating than the existing analyses not saying much about the possible values of the judge index or postulating ‘several types of subjectivity’.

In Chapter 3, I addressed ‘purpose-relativity’ of a standard of comparison in the positive construction. Previous analyses treated it as a largely pragmatic phenomenon. The semantics of ‘inappropriateness’ had been proposed to be derived by pragmatic mechanisms of ‘prominence’ of a certain modalized set of individuals that then helps figure out the standard of comparison for POS. I argued against this analysis. A number of observations – involving inference patterns, facts from NPI licensing, island sensitivity, reconstruction, low degree modification, cross linguistic availability of the constructions in question, etc. – point in the direction of a very different analysis of this attributive-with-infinitive construction.

I argued that the infinitival clause in this construction denotes a degree interval and directly serves as a standard argument of POS. This analysis groups these infinitival clauses with other standard-denoting expressions, such as *than*-phrases in comparative constructions. Under the analysis I proposed, POS in construction with an infinitival standard clause has to scope out of the AdjP it originates in, as other degree quantifiers

do.

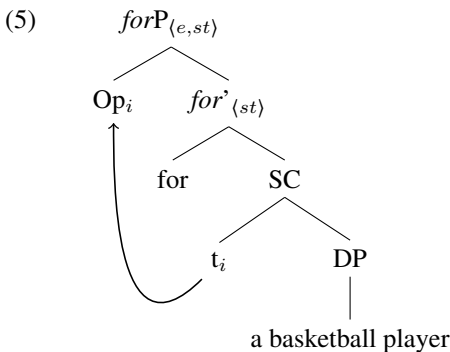
In the end of Chapter 3, I extended this analysis to the ‘functional standard’ construction, as in *This book is a bit long to read in one day*, where the gradable adjective is not in the attributive position of the DP. I showed that directly applying the analysis for the attributive case wouldn’t work, and proposed a coercion analysis.

The main contribution of Chapter 3 was the rejection of the existing ‘pragmatic’ analysis of purpose-relativity in a positive construction. The effect of the infinitival clause introducing the ‘purpose’ turned out to be much more local, structural, and compositional than had been thought before.

Finally, Chapter 4 investigated the notion of comparison classes, or reference sets, and their role in the interpretation of the positive construction. I mainly considered overt comparison class phrases, such as English *John is tall for a basketball player*.

I started with two well-known intuitions about comparison classes: they are known to affect the standard of comparison and induce a presupposition of inclusion between the subject of the gradable predicate and the comparison class. There are two theories analysing the way these interpretational effects are achieved: one theory analyses comparison classes as arguments of POS, while the other one treats them as adjectival modifiers. The data I focused on in this chapter could be seen as challenging for the view that comparison class *for*-phrases are just regular PPs – be it argument or adjunct.

I focused on two diagnostics that group CC *for*-phrases with predicative DPs rather than with arguments or adjuncts: distributivity patterns and subtypes of definite DPs that appear in these constituents. First, I showed that CC *for*-phrases with a singular indefinite DP cannot get distributive interpretation – something that had been noticed for predicative singular indefinite DPs (Dotlačil, 2011). Second, I observed that only ‘semantic’ definites but not ‘pragmatic’ definites (Löbner, 1985; Rothschild, 2007) can appear in CC *for*-phrases – quite like in the predicative position. I suggested a clausal analysis that preserves the parallel between CC *for*-phrases and predicative DPs, which involves small clause structure inside a CC *for*-phrase with operator movement from the subject position:



As an example of an explicitly clausal comparison class phrase which English doesn’t give direct evidence for, I considered Japanese comparison class construction. How-

ever, I didn't make the final decision to have a Japanese-like analysis for English, leaving both possibilities open for discussion.

To conclude, I believe that the linguistic perspective I took in this dissertation on the problems of the standard of comparison in the positive construction proved very productive. It uncovered lots of intricacies of the standards of gradable predicates, but it also generated new data as well as new predictions on the basis of new structures, opening up new directions for studying standards of comparison.



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## Samenvatting

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De afgelopen decennia is de zin *John is tall* ‘Jan is lang’ één van de meest besproken zinnen geworden in de semantiek en in de filosofie van taal. Op het eerste gezicht is het moeilijk te zien wat er zo bijzonder of onbegrijpelijk is aan deze zin. Als je echter wat verder kijkt, wordt het duidelijk dat de precieze betekenis van de zin, ondanks dat hij zo simpel lijkt, moeilijk te bepalen is. Hoe lang moet Jan zijn om als lang beschouwd te worden? Het lijkt moeilijk of zelfs onmogelijk om de exacte hoeveelheid meters of centimeters te bepalen. Deze hoeveelheid kan afhangen van of Jan een jongen of een volwassene is, maar ook van de reden waarom we het over zijn lengte hebben – misschien probeert hij op een erg kleine stoel te zitten of wil hij in een Minicooper rijden en gaat het over de vraag of Jans lengte geschikt is voor deze doelen. Daarnaast is er ook het persoonlijke idee van de spreker over waar de grens tussen korte en lange mensen ligt, dat gebaseerd kan zijn op zijn of haar ervaring, de gemiddelde lengte van de mensen in de regio waar hij/zij is opgegroeid en zijn of haar mening over wat een gemiddelde en normale lengte is voor een persoon van een bepaalde categorie.

Op een schematisch niveau gaat het om een vergelijking tussen Jan – of, om precies te zijn, Jans lengte – en een andere graad die als een vergelijkingsstandaard gezien kan worden. De vergelijkingsstandaard is hier is weergegeven als  $d_{ST}$ :

$$(1) \quad \text{Jans lengte} > d_{ST}$$

De vraag welke lengte Jan moet hebben om als lang beschouwd te worden kan op de volgende manier geherformuleerd worden: wat is de vergelijkingsstandaard  $d_{ST}$  waar *lang* naar verwijst? Deze standaard lijkt een onscheidbare combinatie van verschillende factoren over de interne staat van de spreker, feiten over de wereld en de taalcontext te zijn. De meest besproken ingrediënten van de standaardwaarde zijn onder andere: 1) subjectiviteit (of afhankelijkheid van de beoordelaar) van de standaard (Richard, 2004; Paenen, 2011; Bouchard, 2012; Kennedy, 2012); 2) het verband met doelen en belangen (Fara, 2000; Fleisher, 2008, 2011); 3) het verband met een referentieverzameling of een vergelijkingsklasse (Kennedy, 2007; Bale, 2008, 2011; Solt, 2011).

De scheidslijn tussen deze factoren is vaak vaag en moeilijk precies te plaat-

sen, en dit laatste is één van de doelen van dit proefschrift. Belangrijker nog is dat dit proefschrift ingaat op de vraag hoe deze afhankelijkheden, die vaak niet zo'n informatieve labels krijgen (zoals bijvoorbeeld 'afhankelijkheid van de context' of 'vaagheid' van de vergelijkingsstandaard die bepaalde predikaten introduceren), geanalyseerd moeten worden. Er is veel onderzoek gedaan in de semantiek, de filosofie en de psycholinguïstiek om vast te stellen welke factoren de standaard beïnvloeden. Echter, in de meeste gevallen is het niet duidelijk waar deze intuïties precies op neer komen in termen van de compositionele semantiek. Eén potentiële analyse zou een volledig pragmatische zijn, waarin de informatie over factoren die bijdragen aan de waarde van de standaard afgeleid wordt uit de context, en niet op een compositionele manier in de zinsstructuur wordt of kan worden geïntroduceerd. In dit proefschrift worden argumenten tegen zo'n analyse gegeven, en worden er redenen besproken om aan te nemen dat verschillende factoren een verschillende behandeling vergen, en dat bovendien in de meeste gevallen een structurelere analyse de correcte is.

Het is moeilijk of zelfs onmogelijk om tussen deze twee mogelijkheden te kiezen als men alleen kijkt naar zinnen die bestaan uit een subject en een predikaat, bijvoorbeeld 'John is tall' *Jan is lang*, zoals in het merendeel van de filosofische literatuur tot nu toe is gebeurd. Dit proefschrift gaat uit van een meer taalkundig perspectief. Dit houdt in dat de mechanismen onderzocht worden die talen gebruiken om informatie over afhankelijkheid van de beoordelaar, referentiesets enz. – elementen die de context 'vaststellen' of 'beïnvloeden' zoals 'beoordelaar'-PPs, *for* 'voor' frases die een vergelijkingsklasse introduceren, allerlei soorten 'doel-constructies, die deel kunnen uitmaken van de constructie met het positieve graduele adjectief:

- (2) a. The ride was *fun for John*. BEOORDELAAR  
 ('Het ritje was leuk voor John.')  
 b. 'War and Peace' is a *long* book **to read in one day**. DOEL  
 (lett. 'Oorlog en vrede' is een lang boek om in één dag te lezen.)  
 c. Vera is *smart for a 5-year-old*. VERGELIJKINGSKLASSE  
 ('Vera is slim voor een vijfjarige.')

In dit proefschrift wordt de invloed van standaardbeïnvloedende elementen op de structuur en semantiek van deze zinnen bestudeerd. Er wordt aangetoond dat de categorie van standaardbeïnvloedende elementen heterogeen is wat betreft de manier waarop ze effect hebben – in sommige gevallen erg indirect, in andere gevallen 'compositioneler' dan meestal wordt aangenomen. Tot slot blijken sommige soorten standaardmodificerende elementen een complexere interne structuur te hebben dan in eerdere analyses werd aangenomen.

De belangrijkste aannames over de betekenis van graduele adjectieven waarop in dit werk wordt voortgebouwd zijn vrij standaard en komen in de een of andere vorm terug in veel semantische analyses van gradualiteit (Bartsch and Vennemann, 1973; Seuren, 1973; von Stechow, 1984; Bierwisch, 1989; Cresswell, 1977; Heim, 1985, 2001; Kennedy, 1997, 2007; Kennedy and McNally, 2005; Klein, 1991, o.a.):

- (3) a. Graduele adjectieven relateren hun argument aan abstracte representaties van metingen, oftewel GRADEN.



- b. Een verzameling van graden die totaal geordend zijn met betrekking tot een bepaalde dimensie (hoogte, prijs, enz.) vormt een SCHAAL.

In dit proefschrift wordt de basisbetekenis van graduele adjectieven beschouwd als een relatie tussen graden en individuen, van het type  $\langle d, \langle e, t \rangle \rangle$  (zie o.a. Kennedy 1997; Heim 2001; Bhatt and Pancheva 2004; Neeleman et al. 2004):

- (4)  $\llbracket \text{lang} \rrbracket = \lambda d \lambda x. \mu_{\text{lang}}(x) \geq d$ ,  
 waarin  $\mu_{\text{tall}}$  een meetfunctie is op de schaal van lengte en  $\geq$  een niet-strikte overschrijdingsrelatie in het domein van graden.

Als laatste ingrediënt van de positieve constructie met graduele adjectieven wordt er een onuitgesproken positief morfeem POS aangenomen bij wijze van extra stap, zodat het graduele adjectief als predikaat over individuen kan worden toegepast (Kennedy 2007 en vele anderen):

- (5)  $\llbracket \text{POS} \rrbracket = \lambda G_{\langle d, et \rangle} \lambda x_e. \mathbf{max}(\lambda d. G(d)(x)) > d_{ST}$ ,  
 waarbij  $d_{ST}$  een standaard graad is

Zoals blijkt uit de klassieke versie van POS in (5) maakt de positieve standaard zelf – en ditzelfde geldt voor de ‘beoordelaar’ en de vergelijkingsklasse – op geen enkel moment op een compositionele manier deel uit van de semantiek van de positieve constructie. De standaard is geen argument van POS, maar wordt op de een of andere manier afgeleid uit de context. Informatie over afhankelijkheid van de beoordelaar, vergelijkingsklasse, en doelen of belangen maakt deel uit van de standaard.

In drie hoofdstukken wordt deze opvatting onderzocht. De opties die worden overwogen wat betreft de manier waarop standaardbeïnvloedende informatie in de derivatie terugkomt, zijn de volgende: 1) een ‘niet-compositionele’ optie, in de zin dat er geen (nul-)element in de logische vorm is dat informatie toevoegt op het moment in de derivatie dat de vergelijkingsstandaard wordt berekend; 2) een ‘compositionele’ optie – er is mogelijk een (nul-)element dat standaardbeïnvloedende informatie rechtstreeks in het domein waar de standaard wordt berekend introduceert, hetzij als een argument van POS of van een adjectief, hetzij als een modificeerder op enig niveau in de buurt van het adjectief of het graad-hoofd.

Deze opties worden besproken voor de drie soorten standaardbeïnvloedende informatie die hierboven zijn genoemd: afhankelijkheid van de beoordelaar (of subjectiviteit) van positieve graduele adjectieven, doel-relativiteit, en vergelijkingsklasse.

Na het inleidende eerste hoofdstuk ligt de focus van Hoofdstuk 2 voornamelijk op afhankelijkheid van de beoordelaar als factor die de interpretatie van de positieve constructie beïnvloedt, hoewel er daarnaast ook een aantal constructies worden besproken, in het bijzonder ‘modale graad-constructies’ met *too* / *enough* (‘te’ / ‘genoeg’).

In Hoofdstuk 2 wordt beargumenteerd dat de bijdrage van ‘beoordelaar’-PPs zoals in *The ride was fun for John* (‘Het ritje was leuk voor John’) indirecter is dan over het algemeen wordt aangenomen. Bestaande theorieën zien deze PPs als beoordelaarsargumenten van adjectieven of als elementen die de beoordelaarsindex van waarde veranderen. In Hoofdstuk 2 wordt aangetoond dat deze analyses worden ondermijnd

als men verdere data in ogenschouw neemt. Deze theorieën veronderstellen namelijk dat beoordelaar-PPs acceptabel zijn in alle constructies waarin afhankelijkheid van de beoordelaar een rol speelt. Echter, uit de data in Hoofdstuk 2 blijkt dat deze ‘beoordelaar’-PPs (of, in sommige talen, DPs) alleen voorkomen bij een deel van de subjectieve predikaten – namelijk alleen bij die predikaten die refereren aan een ervaringsgebeurtenis als deel van hun semantiek.

Op basis hiervan wordt beargumenteerd dat deze PPs ervaringsfrases zijn die een thematische ervaringsrol realiseren van het adjectieve predikaat. Hun acceptabiliteit is zo in zekere mate afhankelijk van de afhankelijkheid van de beoordelaar op zich. De zichtbare afhankelijkheid tussen de ervaringsrol en de waarde van de beoordelaarsparameter ligt bevat in de ‘beoordelaar=ervaringsrol’-restrictie die hier voor een bepaalde categorie van ervaringspredikaten wordt voorgesteld. Hoofdstuk 3 gaat in op de ‘doel-relativiteit’ van een vergelijkingsstandaard in de positieve constructie. Eerdere analyses behandelden dit als een voornamelijk pragmatisch fenomeen, met als voorstel dat de semantiek van ‘ongepastheid’ wordt afgeleid via pragmatische mechanismen met betrekking tot de ‘prominentie’ van een bepaalde verzameling individuen, waaruit de vergelijkingsstandaard vervolgens kan worden opgemaakt. Hoofdstuk 3 geeft argumenten tegen deze analyse. Een aantal observaties – over onder andere gevoeltrekpatronen, data over NPI-acceptabiliteit, gevoeligheid voor eilanden, reconstructie, lage-graadmodificatie, de cross-linguïstische beschikbaarheid van de hier besproken constructies, enz. – suggereren een andere analyse van deze attributief-plus-infinitief-constructie.

Volgens de alternatieve analyse die in Hoofdstuk 3 wordt ontwikkeld, verwijst de infinitieve frase in deze constructie naar een interval van graden en dient hij als een standaard-argument van POS. Deze analyse behandelt deze infinitieve frases hetzelfde als andere elementen die naar een standaard verwijzen, zoals standaard-frases in comparatieve constructies. In deze analyse moet de POS, net als andere graad-kwantoren in constructies met een infinitieve standaard-frase wijder bereik hebben dan de AdjP waar hij oorspronkelijk vandaan komt.

Aan het eind van Hoofdstuk 3 wordt deze analyse uitgebreid naar de ‘functionele standaard’-constructie, zoals in *This book is a bit long to read in one day* (‘Dit boek is een beetje lang om in één dag te lezen’), waar het graduele adjectief niet in de attributieve positie van de DP staat. Er wordt geconcludeerd dat het niet werkt om de analyse voor de attributieve gevallen ook op deze constructie toe te passen, en dat een andere coercieanalyse nodig is.

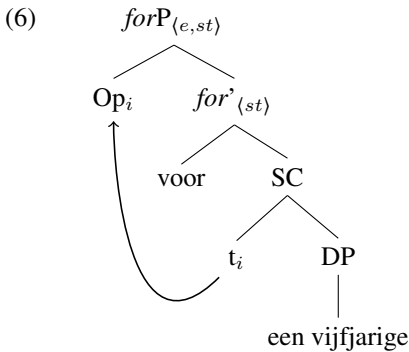
De voornaamste bijdrage van Hoofdstuk 3 is de verwerping van de bestaande ‘pragmatische’ analyse van doel-relativiteit in een positieve constructie. Het effect van de infinitieve frase die het ‘doel’ introduceert blijkt localer, structureler en compositioneler te zijn dan voorheen werd aangenomen.

Tot slot onderzoekt Hoofdstuk 4 de notie van vergelijkingsklassen, of referentieverzamelingen, en de rol hiervan in de interpretatie van de positieve constructie. Frases met vergelijkingsklassen, zoals het Engelse *Vera is smart for a 5-year-old* (‘Vera is slim voor een vijfjarige’), worden besproken.

Twee bekende intuïties over vergelijkingsklassen vormen het uitgangspunt. Deze intuïties beïnvloeden de vergelijkingsstandaard en leiden tot een presuppositie dat het

onderwerp van het graduale predicaat bevat is in de vergelijkingsklasse. Er zijn twee theorieën die de manier waarop deze interpretatieve effecten tot stand komen analyseren: de ene theorie analyseert vergelijkingsklassen als argumenten van POS, terwijl de andere theorie deze behandelt als bijvoeglijke bepalingen. De data waarnaar in dit hoofdstuk wordt gekeken, kunnen worden gezien als problematisch voor de visie dat vergelijkingsklassefrases met *for* gewone PPs zijn (in argumentspositie of in adjunctpositie).

De discussie concentreert zich op twee kenmerken op basis waarvan vergelijkingsklassefrases ingedeeld kunnen worden met predicatieve DPs in plaats van met argumenten of adjuncten: distributiviteitspatronen en de subtypes van definiete DPs die in deze constituenten voorkomen. Ten eerste wordt aangetoond dat vergelijkingsklassefrases met een enkelvoudige indefiniete DP geen distributieve interpretatie kunnen krijgen, iets dat al aangetoond was voor predicatieve enkelvoudige indefiniete DPs (Dotlačil, 2011). Ten tweede wordt betoogd dat alleen ‘semantische’ definieten, maar geen ‘pragmatische’ definieten (Löbner, 1985; Rothschild, 2007) kunnen voorkomen in vergelijkingsklassefrases – hetzelfde geldt voor de predicatieve positie. Het hoofdstuk besluit met de formulering van een analyse op fraseniveau, die de parallel tussen vergelijkingsklassefrases en predicatieve DPs behoudt. Deze analyse impliceert een *small clause* in een vergelijkingsklassefrase met *operator movement* vanuit de positie van het subject:



Japanse vergelijkingsklasseconstructies worden gegeven als een voorbeeld van een expliciete clausale vergelijkingsklassefrase, waarvoor in het Engels geen direct bewijs kan worden gevonden. De data in Hoofdstuk 4 dwingen er echter niet toe om voor het Engels een zelfde analyse als voor het Japans aan te nemen, zodat beide mogelijkheden worden opengelaten voor discussie.

Tot conclusie kan men stellen dat het taalkundige perspectief waarmee het probleem van de vergelijkingsstandaard in positieve constructies in deze dissertatie is benaderd, zeer productief is gebleken te zijn. Hierdoor zijn heel wat complicaties boven water gekomen bij het bestuderen van de standaard van graduele predicaten, maar ook nieuwe data en nieuwe voorspellingen op basis van nog niet bestudeerde structuren. Dit maakt de weg vrij voor het onderzoeken van nieuwe richtingen binnen de studie van vergelijkingsstandaarden.



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## Curriculum Vitae

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Lisa Bylinina was born on the 12th of April 1983 in Vladivostok, former Soviet Union. In 2000, she began her studies at the Philological Faculty of Lomonosov Moscow State University – first, at the Department of Russian Language and Literature, later at the Department of Theoretical and Applied Linguistics. After her graduation in 2005, she spent several years working as a computational linguist in Moscow. In autumn 2009, she joined an NWO project ‘Degrees under Discussion, where Rick Nouwen (Utrecht Institute of Linguistics OTS) was a principle investigator. In early 2010, Lisa Bylinina moved to Utrecht to take a full-time PhD position on the topics of degrees, gradability, and standards of comparison. This dissertation is the result of Lisa Bylinina’s PhD research as part of this project.