Adjectives and Infinitives in Composition

by

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Abstract

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The following is a study of the syntax and semantics of two attributive adjective constructions of English. Alongside the goal of providing a thorough description of their structure and interpretation, I devote particular attention to the constructions' significance for theories of gradability and modal comparison; they also offer new insight into the division of labor between semantics and pragmatics in determining standards of comparison for gradable predicates in the positive degree. The constructions in question involve interactions between an attributive adjective and a postnominal infinitival relative clause within a (typically predicative) DP. I call them attributive-with-infinitive constructions (AICs). AICs are divided into nominal and clausal subtypes; the classification of examples relies heavily on their interpretation, as nominal and clausal AICs share the same surface syntax. An example of a nominal AIC is *Middlemarch is a long book to assign*; a minimally different clausal AIC is *Middlemarch is a bad book to assign.* This work is, to the best of my knowledge, the first to provide a thorough description and analysis of nominal AICs.

Nominal AICs are associated with an interpretation of inappropriateness: in the example above, we understand that *Middlemarch* is inappropriately long for the purpose

of assigning it. I propose that this reading arises from the way in which the standard of comparison for positives is computed: the standard is partly a product of the future-oriented modality of the infinitival relative clause. The positive degree operator tells us that *Middlemarch*'s length exceeds this modalized standard of comparison; inappropriateness is the result. Clausal AICs, by contrast, are related to the *tough* construction and may be paraphrased via an impersonal: *It is bad/#long to assign Middlemarch*. I argue that a clausal-AIC adjective specifies a modal ordering source against which the content of the infinitival relative is evaluated. For the example above, the resulting interpretation is that the proposition *one assigns Middlemarch* is more compatible with the ideal specified by *good* than other propositions of the form *one assigns x*. The two types of AIC are thus both comparison constructions; their semantic differences are paralleled by differences in syntactic structure and composition.

Contents

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Chapter 1

Introduction: A Field Guide to AICs

1.1 Overview

The following is an investigation of the syntactic and semantic relationship between prenominal adjectives and postnominal infinitival clauses in a pair of related English constructions. For each of the sentence types of interest, shown in (1), we have a sense that the adjective "modifies" the infinitival clause in some way (or perhaps vice versa):

(1) a. *Middlemarch* is a long book to assign.

b. *Middlemarch* is a bad book to assign.

My goal is to provide a semantically precise characterization of the adjective–infinitive modification in (1). While the two sentences lend themselves to similar paraphrases—'*Middlemarch* is long/bad for purposes of assigning a book'—there is also a clear difference

in the ways in which the adjective and infinitive interact in the two cases. Informally, we might say that in (1a) *Middlemarch*'s length tells us something about whether one should assign the book, whereas in (1b) *Middlemarch*'s badness may or may not be implicated in the decision to assign the book. Meanwhile, in (1b) the infinitival clause tells us what kind of badness we are talking about, while in (1a) the infinitival does not tell us what kind of length we are talking about. Closer inspection reveals a raft of syntactic and semantic differences between the two sentence types. In what follows, I aim to show how adjective–infinitive modification arises in vastly different ways in the two constructions and how this semantic difference is connected to syntactic structure.

The principal motivation for this study is a desire to contribute to our understanding of adjectives in English. Of the traditional grammatical categories, adjectives have tended to receive the smallest share of modern linguists' attention, with theories of grammar constructed primarily on the firmer ground of nouns, verbs, and adpositions. Adjectives—syntactically optional and semantically diverse almost to the point of unruliness—have proven far more difficult to characterize. In English, attributive (i.e., prenominal) adjectives are the "adjectives of adjectives," their syntactic and semantic properties more difficult to explain, and correspondingly less often discussed, than those of their predicative counterparts. One of the major goals of the dissertation is to show, for at least a subset of attributive adjectives in English, what an adequate syntactic and semantic theory must say about them.

While I do not offer a comprehensive theory of English attributive adjectives here, the constructions I examine provide a new and useful perspective on at least two issues

of major theoretical significance in the study of adjectives: the determination of standards of comparison for gradable adjectives and the nature of adjectival modality. They also contribute, albeit somewhat more indirectly, to our understanding of the *tough* construction, to which the sentence type in (1b) is closely related. Moreover, this study makes a significant empirical contribution to English grammar, as it is, to the best of my knowledge, the first to systematically investigate the structure and interpretation of sentences like (1a). The dissertation thus adds to both our theoretical understanding and our basic descriptive knowledge of adjectives in English.

1.2 Empirical Basics

Here I lay out the basic descriptive criteria used to identify the constructions of interest and to distinguish them from others with similar surface structure. I then describe some of the basic syntactic features shared by the two constructions before examining their differences in greater detail in the next section.

1.2.1 The Basic Distinction

I call the constructions shown in (1) attributive-with-infinitive constructions, or AICs. The name is simply a description of the internal make-up of the sentences' predicative DPs, in which an attributive adjective precedes the noun and an infinitival relative clause follows it. Sentences like (1a) are NOMINAL AICs, while those like (1b) are CLAUSAL AICs. These terms reflect a basic intuition about the semantic scope of the adjective in each construction. For nominal AICs like (1a), I claim that there is no direct modification of the infinitival

clause by the adjective. Rather, our understanding of the infinitival clause is dependent on the adjective's modifying the head noun; in this case, the book *Middlemarch* is long to such a degree that assigning it is unlikely or inappropriate. In clausal AICs like (1b), by contrast, the adjective seems primarily to modify the infinitival clause; while (1b) says that assigning the book *Middlemarch* is bad, this tells us nothing about whether the book is bad in and of itself. As a baseline indicator of the disparity in adjectival modification between nominal and clausal AICs, consider the status of the impersonal paraphrases shown in (2).

(2) a. # It is long to assign *Middlemarch*.

b. It is bad to assign *Middlemarch*.

The nominal AIC from (1a) cannot be paraphrased by the impersonal construction in (2a), while the clausal AIC from (1b) is readily paraphrased by the impersonal (2b). While I do not wish to propose any derivational relationship between the respective sentence pairs in (1) and (2), I believe that the acceptability of the clausal-AIC paraphrase in (2b) supports the idea that clausal-AIC adjectives modify the infinitival clause and not the noun. The unacceptability of (2a) shows that a different relationship is involved in nominal AICs. The intuition about adjectival scope described here is supported by an array of facts to be discussed in section 1.3.

I wish to mention one further difference between nominal and clausal AICs at the outset: nominal AICs, but not clausal AICs, are invariably associated with an "inappropriateness" interpretation. In (1a), we understand not just that *Middlemarch* is a long book according to some standard, but that its length makes the action denoted by the infinitival clause—assigning the book—inappropriate. Nominal AICs are thus semantically similar to *too*

constructions like *Middlemarch is too long a book to assign* (though see section 2.2.4 for an inventory of the many differences between these two sentence types). The inappropriateness reading survives when *long* is replaced by another adjective, even its polar opposite: in *Middlemarch is a short book to assign*, we understand that the book is inappropriately short rather than inappropriately long. Clausal AICs, by contrast, have no such reading systematically associated with them. While the clausal AIC in (1b) may carry a sense of inappropriateness, it is clear that any such interpretation is entirely dependent on the lexical semantics of the adjective *bad*, and not on the construction itself. When we replace *bad* in (1b) with its polar opposite, *good*, all sense of inappropriateness vanishes. In impersonal paraphrases and the inappropriateness interpretation, we thus have two rough-and-ready diagnostics for distinguishing nominal AICs from clausal AICs.

1.2.2 Properties Common to Both Types of AIC

With the basic distinction established, I now turn my focus to those syntactic and semantic characteristics that are shared by both types of AIC. Earlier, I defined AICs as constructions in which a DP contains both an attributive adjective before the noun and an infinitival clause after the noun. Nominal and clausal AICs, however, can be defined somewhat more precisely: in both cases, we are dealing not simply with an attributive adjective and a postnominal infinitival clause, but with an attributive gradable adjective and a postnominal infinitival relative clause. Below I consider the evidence for each of these revisions. First, though, in order to convince ourselves that AIC infinitival clauses are indeed contained within DP and not simply located at the right edge of the sentence at some higher node, we may observe that the infinitival clause "stays with" the adjective

and noun when an AIC DP is located in subject position, as shown in (3).[1] This is strong evidence that the infinitival clause is indeed located within DP, as asserted in our definition above.

(3) a. A long/bad book to assign is *Middlemarch*.

b. # A long/bad book is *Middlemarch* to assign.

The examples of AICs discussed so far all contain gradable adjectives, i.e., adjectives that measure degrees of a property and may be felicitously used in comparatives. Closer inspection reveals that gradability is more than simply a common feature of AIC adjectives; it is a requirement. Adjectives that are not gradable, but instead denote absolutely fixed categories, are infelicitous in AICs. The sentences in (4), all of which contain non-gradable adjectives, have neither a nominal-AIC nor a clausal-AIC reading (the mark of infelicity, #, indicates only that these sentences lack AIC readings, not that they are completely uninterpretable).

(4) a. # Philadelphia is an American city to fly through.

b. # Murder is a mortal sin to commit.

c. # That is a wooden table to put your computer on.

d. # Sparky is a dead goldfish to flush.

We may employ the impersonal-paraphrase test shown above to see that the examples in (4) lack a clausal-AIC reading: for example, to the extent that (4a) is interpretable, it

[1] I restrict my attention in (3) to the subject position of specificational copular clauses, a predicative position (Higgins 1979); we will see below that nominal-AIC DPs may occur only in predicative positions.

cannot be paraphrased by the sentence *It is American to fly through Philadelphia.*[2] These sentences likewise lack a nominal-AIC reading, as shown by the unavailability of the construction's characteristic inappropriateness interpretation: (4a) cannot mean that Philadelphia is inappropriately American for purposes of flying through it. The other examples are similarly restricted in their interpretation, permitting neither the clausal- nor the nominal-AIC reading. Neither type of AIC, it seems, allows non-gradable adjectives.

An aside on the criteria for gradability is in order here. When identifying an adjective as non-gradable, we must be careful in interpreting the tests we use to make the determination. A standard indicator of adjectival non-gradability is an inability to occur in comparative constructions. This diagnostic works well with the adjective *dead* in (4d); consider the infelicity of *#Sparky is more dead than Floaty.* By contrast, the adjective *wooden* in (4c) can happily occur in the comparative sentence, *The table is more wooden than the chair.* Importantly, this cannot be taken as evidence that *wooden* denotes a gradable property. This comparative sentence can only mean that more distinct subparts of the table than distinct subparts of the chair are wooden (e.g., in a situation where both the table and the chair are made up of wooden, metal, and plastic parts). The phrase *more wooden* cannot mean that any particular subpart made of wood is 'more wooden' than another subpart made of wood. At the appropriate level of granularity, there are no degrees of woodenness, only the categorical property of being wooden. This is in stark contrast to the situation with a gradable property like *long*, which permits no such granulo-categorical reduction. Thus,

[2]The one available interpretation of sentences like those in (4) involves a deontic modal interpretation: roughly, 'Philadelphia is an American city that you should fly through'; see Bhatt (1999) for detailed discussion. On this reading, which I will henceforth refer to as the exhortative reading, the adjective and the infinitival clause do not interact as they do in either type of AIC, and so I set the reading aside (see also section 1.2.4).

by focusing on the properties denoted by the adjectives, and not simply on the felicity of comparative sentences containing them, we see that non-gradable adjectives are indeed barred from occurring in AICs.

Consistent with the observation that AICs must contain gradable adjectives is the fact that AICs may be used for what Barker (2002) calls "sharpening." Barker observes that sentences with gradable predicates in the positive degree can convey two distinct types of information: they can tell us something about the argument of the gradable predicate, or they can tell us something about the contextually determined standard associated with the predicate itself. The latter phenomenon is sharpening. Sentences like the nominal AIC *Bob is a short person for the Lakers to draft* and the clausal AIC *Bob is a good person to hire* not only convey information about Bob, but also may have a sharpening effect on the relevant standard of comparison—the appropriate height threshold for people whom the Lakers should draft, or the threshold for who counts as a 'good person to hire'—if the standard is unsettled or disputed in a given context. Moreover, both types of AIC conform to a restriction on gradable predicates observed by Barker: they may not be embedded under a control verb. Barker argues that to embed a gradable predicate under a control verb like *want* is to express not an ordinary desire about the (subject) argument of the gradable predicate, but a metalinguistic desire about the threshold at which that gradable predicate is considered true in a given context. Such metalinguistic wanting is infelicitous. Consider (5) and (6).

(5) a. # I want to be a young person to invite to the party.

b. # I want this to be an eventful party to leave early.

(6) a. # I want to be a good person to invite to the party.

b. # I want this to be a stupid party to leave early.

For the embedded nominal AICs in (5), the only possible interpretation is one in which the speaker wants the relevant threshold of youngness or eventfulness to be such that the embedded (i.e., controlled) subject surpasses it. Likewise, for the embedded clausal AICs in (6), the only possible interpretation is one in which the speaker wants the threshold for being a 'good person to invite to the party' or a 'stupid party to leave early' to be metalinguistically adjusted such that the embedded subject satisfies the requirements for membership in the relevant set.[3] Given the infelicity of such metalinguistic wanting, we may trace the unacceptability of the examples in (5) and (6) to the sharpening effect, and in turn to the gradability of AIC adjectives.

Moving across the noun from the gradable attributive adjective, we may now take a closer look at the infinitival clause that follows the noun in AICs. As mentioned above, the internal syntax of the infinitival clause is the same in both nominal and clausal AICs: it is an infinitival relative clause. There is a wealth of evidence to support this analysis. First, an AIC infinitival clause must contain a gap; in all of the examples examined so far, the gap has been in direct-object position, but in principle it can occur in any argument position

[3]There is one way, however, in which sentences like these can be salvaged: if the embedded subject is something that does not exist at the time of speech, the sentence then tells us something about what it should be like once it comes into being. For example, if sentence (6b) is uttered by a party planner in reference to a party that will take place in the future, it is perfectly felicitous. In such a scenario, the planner wants the not-yet-extant party to be such that it will meet the threshold for being a 'stupid party to leave early'; crucially, this does not involve metalinguistic adjustment of the threshold itself. AICs may thus be embedded under control verbs, but only on this prospective interpretation, in which the subject does not yet exist or is so malleable that it can be adjusted to meet the relevant threshold.

within the clause, as shown in the examples in (7) and (8).[4]

(7) Nominal-AIC gaps:

a. That is an old book ___ to still be on the best-seller list. SUBJECT

b. That is an old book for Bob to assign ___. DIRECT OBJECT

c. That is an old book for Bob to write about ___. OBJECT OF P

(8) Clausal-AIC gaps:

a. I'm a lousy person ___ to answer this question.[5] SUBJECT

b. That is a lousy book for Bob to assign ___. DIRECT OBJECT

c. That is a lousy book for Bob to write about ___. OBJECT OF P

The AICs shown in (7) and (8) all contain exactly one gap. Note that the non-subject relativization sentences—the (b) and (c) examples—all contain an overt subject in the infinitival relative clause, introduced by the complementizer *for*. When the subject of the infinitival relative is (arbitrary) PRO, as in our earlier examples in (1), the infinitival clause appears to contain two gaps (and *for* goes missing, as well). In such cases, only the non-subject gap is the result of relativization; as a rule, there is never more than one gap that results from relativization.

Second, AIC infinitival clauses obey well-known but ill-understood restrictions on overt *wh*-movement that have been observed for infinitival relatives (McCawley 1998:439ff.;

[4]Some AIC adjectives, in particular those associated independently with the *tough* construction, do not permit subject gaps in the AIC infinitival clause: *#Middlemarch is a tough book to be a best-seller*. This is a lexical restriction; as the examples in (7) and (8) show, subject gaps are generally permitted in AICs.

[5]Source: http://www.whiterose.org/pam/archives/000346.html, accessed via Google, October 21, 2006.

de Vries 2002:60). They may contain an overt *wh*-element only if it occurs as part of a pied-piped PP, and only if the complementizer *for* and the clausal subject are phonologically null; otherwise, a null operator must be used. PP pied-piping requires an overt *wh*-element and is unacceptable with a null operator. The paradigm is shown for both types of AIC in (9), with the nominal-AIC adjective *shaky* and the clausal-AIC adjective *good*.

(9) a. Pied-piped PP, covert C^0 and subject:

i. That's a shaky/good table [on **which**] to put a lamp ___.

ii. # That's a shaky/good table [on OP] to put a lamp ___.

b. In situ PP, covert C^0 and subject:

i. # That's a shaky/good table **which** to put a lamp on ___.

ii. That's a shaky/good table OP to put a lamp on ___.

c. Pied-piped PP, overt C^0 and subject:

i. # That's a shaky/good table [on **which**] for Bob to put a lamp ___.

ii. # That's a shaky/good table [on OP] for Bob to put a lamp ___.

d. In situ PP, overt C^0 and subject:

i. # That's a shaky/good table **which** for Bob to put a lamp on ___.

ii. That's a shaky/good table OP for Bob to put a lamp on ___.

As can be seen from these examples, the independently attested restrictions on overt *wh*-movement in infinitival relatives conspire to make (9a.i) the only case in which the overt *wh*-pronoun *which* is acceptable. In all other acceptable examples, the null *wh*-operator OP must be used instead. Accordingly, almost all AICs discussed in the remainder of

the dissertation will contain null *wh*-operators rather than overt *wh*-expressions like *which*. Though I have no explanation to offer for the puzzling restrictions on *wh*-movement in infinitival relatives, the fact that AIC infinitival clauses exhibit exactly these restrictions suggests strongly that they are infinitival relatives.

Finally, an additional piece of evidence in favor of the infinitival relative analysis of AIC infinitivals is their ability to license unbounded dependencies and parasitic gaps, a well-known property of relative clauses. As usual, such dependencies are blocked to different degrees by islands of different sorts. Examples with no island (a), with a weak *wh*-island (b), and with a strong subject island (c) are shown for nominal and clausal AICs in (10) and (11), respectively. (The (a) examples also show the licensing of parasitic gaps, abbreviated as **pg**.)

(10) Nominal AICs:

a. That's a long book for Bob to expect his students to read ___ (without taking notes on **pg**).

b. ? That's a long book for Bob to ask whether to assign ___.

c. * That's a long book for [Bob's review of ___] to amount to less than a page.

(11) Clausal AICs:

a. That's an odd thing for Bob to expect people to buy ___ (without comparing **pg** to competing products).

b. ? That's an odd thing for Bob to ask whether to buy ___.

c. * That's an odd thing for [Bob's remarks on ___] to provoke such an uproar.

There is thus an abundance of evidence to show that the infinitival clauses in AICs are infinitival relatives. Alongside the generalization that AIC adjectives must be gradable, it is a basic property that connects nominal and clausal AICs, despite the many differences between the constructions to be discussed below.

1.2.3 Different Sentence Types, Not Different Adjective Types

It is important to observe that a large number of adjectives may occur in both nominal and clausal AICs. It is thus inappropriate to speak of "nominal-AIC adjectives" and "clausal-AIC adjectives" as if these were two distinct classes of adjectives. Rather, these terms must be understood syntagmatically; i.e., a nominal-AIC adjective is one that occurs in a particular instance of a nominal AIC, and likewise for a clausal-AIC adjective. In general, a given adjective may occur in both nominal and clausal AICs or in nominal AICs only; I have found no adjectives that occur exclusively in clausal AICs.

The adjective *long* is an example of an adjective that occurs in nominal AICs but not in clausal AICs. As we have seen above, this is connected to the fact that *long* is unable to take an infinitival-clause argument, as witnessed by the unacceptability of the impersonal paraphrase above in (2a). The adjective *good*, by contrast, though it has been used only in clausal AICs so far, may occur in either type of AIC. Consider the nominal AIC with *good* in (12).

(12) *(In a situation where one has been looking for a parking space for a long time and is running late:)*

That is a good parking space to pass up.

≠ It is good to pass up that parking space.

The nominal AIC in (12) has the characteristic inappropriateness interpretation: we understand that the parking space in question is good to such an extent that it is inappropriate for us to pass it up. As shown in (12), this reading cannot be paraphrased with the impersonal construction used to paraphrase clausal AICs, indicating that it is indeed different from a clausal AIC. Of course, in a different context, the AIC in (12) might be read as a clausal AIC, in which case the impersonal paraphrase would be valid. In general, adjectives subcategorized for infinitival-clause arguments, like *good*, also have an "ordinary" use in which they take a nominal argument. When such adjectives occur in AICs, the former understanding yields a clausal-AIC reading, while the latter yields a nominal-AIC reading. The fact that such adjectives are argument-structurally flexible in this way accounts for the generalization that, while some adjectives occur exclusively in nominal AICs, no adjective occurs exclusively in clausal AICs: any clausal-AIC adjective must also be able to occur in nominal AICs, but not vice versa.

As a further example of the vastly different interpretations that may arise from a single AIC surface string given an appropriately flexible adjective, consider the examples in (13), which use the adjective *crafty*.

(13) Bob is a crafty person to hire as your accountant.

a. NOMINAL AIC: Bob is inappropriately crafty; you shouldn't hire him.

b. CLAUSAL AIC: It is crafty to hire Bob; you should hire him.

As shown in (13), the nominal- and clausal-AIC readings of a given string may have quite different interpretations and may license directly opposite inferences. The adjective *crafty*,

like so many others, is thus neither a nominal-AIC adjective nor a clausal-AIC adjective in and of itself; rather, it is a nominal-AIC adjective in (13a) and a clausal-AIC adjective in (13b).

The discussion in this section, alongside the examples in (12) and (13), confirms that nominal and clausal AICs must be treated as distinct sentence types. That is, we cannot reduce the differences between the two constructions to some property of the adjectives that occur in them; as we have seen, one and the same adjective may occur in both types of AIC.[6] As I will argue in the remainder of the dissertation, the ambiguity in (13) is not lexical but structural.

1.2.4 Similar Constructions Set Aside

Finally, I point out a few constructions that are structurally similar to AICs but differ in important respects. I will not offer detailed analyses of these sentence types; I mention them here simply to show how they differ from nominal and clausal AICs.

The first construction is shown in (14); I call sentences of this type "son-in-law" sentences.

(14) You're a good person to put up with my parents.

a. = It is good **of you** to put up with my parents.

b. ≠ It is good **for you** to put up with my parents.

In son-in-law sentences like (14), the relationship between the attributive adjective and

[6]Unless, of course, one takes the two subcategorization frames of adjectives like *good* and *crafty* as evidence that there are distinct lexical items $good_1$, $good_2$, etc. Such an analysis must posit massive duplication of adjectival lexical entries. I believe it is more sensible to treat such adjectives as argument-structurally flexible, as discussed above.

the infinitival clause is, roughly, one of causation: we deem the subject to be a good person because s/he puts up with the speaker's parents. This interpretation is clearly different from a clausal-AIC interpretation, as shown by the unacceptability of the impersonal paraphrase with *for* in (14b). It is likewise different from a nominal-AIC interpretation, as the understood causation in a son-in-law sentence is the reverse of that seen in nominal AICs, where the adjectival content causes us to make a determination of unlikelihood or inappropriateness with respect to the infinitival-clause content. These interpretive differences are tied to a structural difference: the infinitival clause in a son-in-law sentence is not an infinitival relative. The apparent gap in a son-in-law infinitival clause is no gap at all; rather, it is a null PRO subject. The son-in-law reading vanishes once we use a true infinitival relative with a non-subject gap, as shown in (15).

(15) My parents are good people to put up with ___.

a. ≠ It is good **of people** to put up with my parents.

b. = It is good **for people** to put up with my parents.

The sentence in (15) does not allow a son-in-law reading. That is, though I might plausibly consider someone to be a good person because s/he puts up with my parents, I cannot express that thought with the sentence in (15). This suggests that the son-in-law reading arises only with a fully saturated infinitival clause that contains an obligatorily controlled PRO subject. Though I do not pursue a detailed analysis of son-in-law sentences here, I hope to have shown that they are sufficiently different from AICs that we may set them aside for purposes of this study.

I also set aside sentences like the one in (16), which contains an infinitival relative with

what I call an "exhortative" interpretation:

(16) Edmonton is a Canadian city to visit.

Example (16) clearly runs afoul of the requirement, discussed above, that AIC adjectives be gradable; cf. the examples in (4). In (16), the DP contains an infinitival relative clause that is semantically unrelated to the attributive adjective, *Canadian*. Sentences of this type are interpreted just like sentences in which the DP in question lacks an attributive adjective: *Edmonton is a city to visit*. In both cases, the infinitival clause conveys a suggestion or exhortation, paraphrasable as 'you ought to visit the (Canadian) city Edmonton' (for detailed discussion of such infinitival relative clauses, see Bhatt 1999; cf. also footnote 2 above). AICs do not share this behavior. If we remove the adjective from either a nominal AIC or a clausal AIC, we get an interpretation very different from the AIC interpretation. Sentences with exhortative infinitival relatives, like (16), are thus excluded from the general discussion of AICs here.

Finally, I wish to point out a few important differences between clausal AICs and the *tough* construction. At first sight, the clausal AIC looks like the attributive-adjective counterpart of the *tough* construction, which contains predicative adjectives. Consider the comparison in (17).

(17) a. Bob is tough to please. TOUGH CONSTRUCTION

b. Bob is a tough guy to please. CLAUSAL AIC

Despite the apparently close relationship between the two sentences in (17), a number of facts suggest that clausal AICs cannot simply be derived from the *tough* construction, or

vice versa. First, there are adjectives that may occur in clausal AICs but not in the *tough* construction. Quirk *et al.* (1985:1394) cite *odd* as an adjective that is barred from the *tough* construction; yet *odd* occurs freely in clausal AICs, as shown in (18). McCawley (1998:110) offers *stupid* and *unusual* as additional examples of adjectives that follow this pattern, as shown in (19) (judgments original).

(18) a. * Bob is odd to see in Berkeley.

b. What an odd thing to say!

c. Harry is an odd man to be living in Paris. (Berman 1974a:23)

(19) a. * Oscar was stupid to invite.

b. Oscar was a stupid person to invite.

c. * Pickled garlic was unusual to ask for.

d. Pickled garlic was an unusual thing to ask for.

Clausal AICs thus allow a wider range of adjectives than the *tough* construction. I am unaware of any adjective that occurs felicitously in the *tough* construction but not in clausal AICs. While I have no explanation to offer for this disparity between clausal AICs and the *tough* construction, the fact that clausal AICs allow a wider range of adjectives constitutes an important difference between the two constructions, and suggests that clausal AICs should not be treated simply as an attributive variant of the *tough* construction.

A second important difference between clausal AICs and the *tough* construction is the ability of the former, but not the latter, to contain infinitival clauses with expletive or idiom-chunk subjects. It is well known that *tough* infinitivals cannot have non-thematic

subjects (Jacobson 1992; Levine and Hukari 2006). Clausal AICs permit them readily, an observation that dates at least to Berman (1974a:316). The contrast is illustrated in (20).

(20) a. *Tough* sentences:

i. # That building is tough for there to be a riot in.

ii. # This moment is great for the shit to hit the fan (at).

b. Clausal AICs:

i. That is a tough building for there to be a riot in.

ii. This is a great moment for the shit to hit the fan (at).

Clausal AICs' ability to have infinitival clauses with non-thematic subjects sets them apart from the *tough* construction. Note that the adjectives *tough* and *great* are both independently acceptable in the *tough* construction—consider the example, *That book is great to read to your kids*—meaning that the examples in (20a) are not out for independent reasons. It is possible that the unacceptability of non-thematic infinitival-clause subjects in the *tough* construction is related to the restriction against subject gaps that is associated with many *tough*-construction adjectives (mentioned above in footnote 4). For present purposes, I simply note it as an additional measure of the distance between the *tough* construction and clausal AICs. As with son-in-law sentences and exhortative infinitival relatives, I hope to have shown that the *tough* construction is sufficiently different from AICs as to warrant being set aside for the remainder of this investigation.

1.3 More on the Nominal/Clausal Distinction

Having established some of the basic properties of nominal and clausal AICs, I now turn to a more detailed examination of what distinguishes the two constructions. In the previous section we noted that nominal AICs have an inappropriateness interpretation that clausal AICs lack, while clausal AICs can be paraphrased by impersonal clauses in a way that nominal AICs cannot. Here I consider three additional criteria that distinguish the two types of AIC: modificational mismatch between the attributive adjective and the noun, the preservation of the adjective's selectional restrictions, and felicity in comparative constructions. These criteria not only distinguish nominal AICs from clausal AICs, but also support the idea that nominal-AIC adjectives modify the noun, while clausal-AIC adjectives modify the infinitival relative clause.

One of the most notable differences between nominal and clausal AICs is that clausal AICs, but not nominal AICs, may contain adjective–noun syntagms whose interpretation appears to contradict the meaning of the sentence. I call this phenomenon modificational mismatch. Consider the examples in (21).

(21) a. That is a good neighborhood to avoid.

b. Einstein is a stupid person to make fun of.

c. $2 + 2$ is a difficult sum to miscalculate.

In each of the examples in (21), the interpretation of the clausal AIC is incompatible with an interpretation in which the attributive adjective modifies the head noun. Sentence (21a) does not entail that the neighborhood in question is a good one; rather, it strongly implies the opposite. Similarly, (21b,c) do not entail that Einstein is a stupid person or

that $2 + 2$ is a difficult sum. The impersonal-paraphrase data discussed above suggested that clausal-AIC adjectives modify not the adjacent noun, but the infinitival clause that follows it. The examples in (21) confirm this finding, as we can freely construct clausal AICs with adjective–noun pairings whose meaning, were the adjective to modify the noun, would directly contradict the meaning of the sentence.

Nominal AICs never exhibit modificational mismatch of this sort. It is true that a nominal AIC like *Bob is a short guy for the Lakers to draft* may be incompatible with Bob's being short according to some neutral standard; i.e., even while we judge this nominal AIC true, we might judge the sentence *Bob is a short guy* false. Even in such cases, however, the determination of shortness in the nominal AIC remains tied entirely to Bob's height. In a clausal AIC like (21b), by contrast, Einstein's stupidity or lack thereof may have nothing at all do with the determination of whether it is stupid to make fun of him: it might be stupid to do so because Einstein has thin-skinned and litigious descendants, because you are a nominee for a large cash award from his eponymous foundation, or for any number of other reasons. This is an important difference that suggests that nominal-AIC adjectives do not simply modify the infinitival clause in the way that clausal-AIC adjectives do. Modificational mismatch is thus an important criterion for distinguishing nominal AICs from clausal AICs.

A second, and related, difference between nominal and clausal AICs is the preservation of the adjective's selectional restrictions in the former but not the latter. This is strong evidence in support of the proposal that nominal-AIC adjectives modify the following noun and not the infinitival clause. As we observed above in (13), many adjectives allow

both nominal- and clausal-AIC readings; in general, if a clausal-AIC reading is available, a nominal-AIC reading will be available as well. This generalization is violated, however, when the head noun of the AIC fails to meet the selectional restrictions of the adjective. In such cases, only the clausal-AIC reading survives. The pattern is most easily observed with adjectives that require sentient or human arguments, like *smart* and *unwise*:

(22) a. Susan is a smart person to keep in the mail room.

b. Bob is an unwise person to put in charge of the treasury.

(23) a. That's a smart sofa to buy.

b. Marble is an unwise material to use.

In (22), the selectional restrictions of the adjectives are met, and each sentence has both a nominal-AIC reading and a clausal-AIC reading. The two readings are very distinct in (22a): on the nominal-AIC reading, Susan is inappropriately smart to be kept down in the mail room, while on the clausal-AIC reading, it is a smart move to keep her there. In (22b), the two readings are more similar, but still distinguishable: the nominal-AIC reading says that Bob is unwise to such a degree that it is inappropriate to put him in charge of the treasury, while the clausal-AIC reading says simply that it is unwise to put him in charge (while allowing for the possibility that Bob himself might be quite brilliant). In both examples, satisfaction of the adjective's selectional restrictions is correlated with the availability of both types of AIC reading.

In (23), by contrast, the selectional restrictions of the adjectives are not met, and as a consequence we are left only with clausal-AIC readings for the two sentences. The

adjectives are unable to modify the adjacent nouns in (23): a sofa cannot be smart,[7] nor marble unwise. The nominal-AIC readings are therefore absent. If a sofa cannot be smart, then it cannot be smart to such a degree that it is inappropriate to buy it. The absence of the nominal-AIC readings in (23) suggests strongly that nominal-AIC adjectives modify the following noun. When this modification relationship is independently obstructed—e.g., due to a failure to meet the adjective's selectional restrictions—the nominal-AIC is reading unable to arise.

Clausal-AIC readings, by contrast, are completely immune to such selectional interference. The sentences in (23) are unambiguously interpreted as clausal AICs. This result is unsurprising if, as proposed above, clausal-AIC adjectives modify not the adjacent noun but the infinitival clause that follows it. This modification relationship cannot be impeded by the noun's failure to meet the adjective's selectional restrictions: the noun is simply not involved. Adjectival selectional restrictions are thus another useful probe into the differences between nominal and clausal AICs, and they provide additional evidence that nominal-AIC adjectives modify the noun, while clausal-AIC adjectives modify the infinitival clause.

Finally, nominal and clausal AICs may be distinguished by their ability to occur in comparative constructions. Clausal AICs readily occur in comparatives and retain their ordinary impersonal paraphrases. Nominal AICs, by contrast, lose their characteristic inappropriateness interpretation in the comparative degree. Consider the examples in (24) and (25).

[7]Insofar as this word has a specialized meaning in the realm of aesthetics and design, it may have a nominal-AIC reading here, a use which, as expected, gives rise to the inappropriateness reading: *That's a smart sofa to keep in your tool shed.*

(24) Clausal-AIC comparatives:

a. SFMOMA is an easier museum to drive to than the DeYoung is.

b. Bob is a less pleasant person to be around than Ed is.

c. Philadelphia is as interesting a city to visit as Boston is.

(25) Nominal-AIC comparatives:

a. # *Middlemarch* is a longer book to assign than *Emma* is.

b. # Bob is a less short person for the Lakers to draft than Ed is.[8]

c. # Philadelphia is as old a city to visit as Boston is.

The examples in (24) show that clausal AICs are perfectly felicitous in comparatives headed by *more*, *less*, and *as*. All of these examples pass the impersonal-paraphrase test for clausal AICs: (24a) may be paraphrased as 'it is easier to drive to SFMOMA than it is to drive to the DeYoung', and so on for the others. In (25), by contrast, none of the examples retains the inappropriateness interpretation that is characteristic of nominal AICs. Sentence (25a), for example, does not mean that the degree to which *Middlemarch*'s length makes it inappropriate to assign *Middlemarch* exceeds the degree to which *Emma*'s length makes it inappropriate to assign *Emma*. Nor does it mean that both books are inappropriately long, with *Middlemarch* the longer of the two. The only available interpretation of the sentence is the ordinary exhortative infinitival-relative reading discussed above in (16), according to which (25a) means that *Middlemarch* and *Emma* are both books that one ought to assign,

[8]Note that this example improves somewhat if we alter the syntax such that it reads, *Bob is less of a short person for the Lakers to draft than Ed is*. In this case, a metalinguistic comparison is available, according to which we are saying that it is less appropriate to describe Bob as a short person for the Lakers to draft than it is to describe Ed thus. This reading is distinct from the ordinary nominal-AIC reading, and so I set it aside for purposes of the present discussion.

and in addition *Middlemarch* is the longer of the two. As noted above, this is a reading in which the adjective and the infinitival clause do not interact in the typical nominal-AIC manner. The nominal-AIC reading—characterized, as it is, by the inappropriateness interpretation—thus disappears in comparatives. In chapter 2, I offer an analysis of this phenomenon. For now, I simply note it as another important difference between nominal and clausal AICs.

With modificational mismatch, the preservation of adjectival selectional restrictions, and acceptability in comparatives, we thus have three additional criteria for distinguishing nominal AICs from clausal AICs. These will be of great importance as I go on to propose analyses of the two types of AIC in chapters 2 and 3.

1.4 Previous Studies

Few detailed investigations of AICs exist in the literature. Of those that have appeared, all are focused on clausal AICs. A major early work on clausal AICs is Berman (1974a); she calls the construction the "hard nut," after the parade example *a hard nut to crack*. Most other authors have addressed clausal AICs only incidentally, in the course of investigating the *tough* construction. In section 3.2 of the dissertation, I discuss several previous analyses of clausal AICs, showing the ways in which they differ from my own. I am aware of no previous work that investigates the semantics of clausal AICs in as detailed and precise a manner as this dissertation.

I have found no previous studies of nominal AICs in the linguistic literature. As far as I am aware, this study is the first to identify the construction and to offer a syntactic

and semantic analysis of it. Berman (1974a:21) briefly mentions the nominal-AIC reading of AIC surface strings in her discussion of hard nuts, only to set the reading aside for the remainder of her investigation. I have likewise been unable to find discussion of nominal AICs in Quirk *et al.* (1985) or Huddleston and Pullum (2002), two major recent grammars of English.

In the course of investigating AICs, I have proposed analyses of both nominal and clausal AICs that differ from those presented here. Chapters 2 and 3 of this dissertation supersede the analyses presented in Fleisher (2008b) and Fleisher (2008a), respectively.

1.5 Outlook

The majority of the dissertation is devoted to a detailed syntactic and semantic analysis of nominal AICs (chapter 2) and clausal AICs (chapter 3). I adopt a Principles and Parameters-style syntax and a model-theoretic semantics for the analysis. The emphasis throughout is on developing an independently motivated and fully compositional analysis of the two constructions. In particular, I strive to show that nominal and clausal AICs can be successfully analyzed using existing tools developed for the treatment of gradability and modality. In chapter 4, I consider the implications of the nominal-AIC data for the semantics of gradability and the structure of scales. Chapter 5 contains a brief summary, with considerations for future research. The grammar fragment used in the dissertation is specified in the appendix.

Chapter 2

The Structure of Nominal AICs

2.1 Overview

In this chapter I examine the properties of nominal AICs. I show that, while nominal AICs at first appear to have structural and interpretive properties of both positives and comparatives, they are properly analyzed as positives. I discuss important syntactic and semantic differences between nominal AICs and attributive comparatives, as well as between nominal AICs and constructions with attributive *too*. I propose that nominal AICs are attributive positives with an infinitival relative adjunct. The most salient semantic feature of nominal AICs—the sense of inappropriateness associated with them—is shown to arise compositionally from the interaction between the modality of the infinitival relative clause and the meaning of the positive degree head.

2.2 Nominal AICs: Basic Description

2.2.1 Inappropriateness and Adjectival Selection

Nominal AICs may be identified and distinguished from clausal AICs on both syntactic and semantic grounds. The basic contrast between nominal and clausal AICs, discussed at length in chapter 1, is illustrated in (26).

(26) a. *Middlemarch* is a long book to assign. NOMINAL AIC

b. *Middlemarch* is a bad book to assign. CLAUSAL AIC

As can be seen from these examples, both types of AIC have a surface syntax in which a noun is flanked by an attributive adjective to its left and an infinitival relative clause to its right. Two major characteristics of nominal AICs set them apart from clausal AICs, making them readily identifiable.

First, nominal AICs have an interpretation of inappropriateness associated with them. In (26a), we have the sense that *Middlemarch* is inappropriately long for the purpose at hand, i.e., for an act of assigning. The purpose in question is always expressed by the infinitival relative clause in a nominal AIC. Clausal AICs lack this interpretation. Any sense of inappropriateness associated with (26b) is due to the meaning of the adjective *bad*, not to the construction itself. Consider, for the sake of comparison, the clausal AIC *Middlemarch is a good book to assign*; here there is no sense that *Middlemarch* is inappropriately good. Nominal AICs, by contrast, always have the inappropriateness interpretation, even with adjectives that typically lack pejorative connotations (see, e.g., (27b) below).

Second, nominal AICs may be formed with adjectives that do not independently select infinitival-clause arguments. This is shown for the nominal-AIC adjectives *long* and *well-made* in (27), which contrast with the clausal-AIC adjectives *bad* and *easy* in this respect, as shown in (28).

(27) a. *Middlemarch* is a long book to assign.

b. That is a well-made car to sell for scrap.

c. # It is long to assign *Middlemarch*.

d. # It is well-made to sell that car for scrap.

(28) a. *Middlemarch* is a bad book to assign.

b. That is an easy car to drive on hills.

c. It is bad to assign *Middlemarch*.

d. It is easy to drive that car on hills.

Nominal AICs thus permit wider range of adjectives than clausal AICs, including adjectives that are not independently able to select infinitival-clause arguments.[1] Moreover, when adjectives like *good* and *easy* occur in nominal AICs, they fail to have extraposed-subject paraphrases of the type seen in (28), and instead take on the inappropriateness interpretation characteristic of nominal AICs:

(29) a. *(In a situation where one has been looking for a parking space for a long time and is running late:)*

[1]Note that I do not wish to claim that the clausal-AIC examples in (28a,b) are derivationally related to their extraposed-subject paraphrases in (28c,d).

That is a good parking space to pass up.

≠ It is good to pass up that parking space.

b. *(In a situation where one becomes exhausted from a very modest amount of exercise:)*

That is an easy workout to get exhausted from.

≠ It is easy to get exhausted from that workout.

Together with the data in (27), the examples in (29) show that the infinitival clause of a nominal AIC is not an argument of the attributive adjective. The adjective is either generally unable to take such an argument, or it fails to do so in that particular case, as evidenced by the lack of an extraposed-subject paraphrase (see chapter 3 for more detailed discussion of such paraphrases and their relationship to clausal AICs).

2.2.2 Direct Modification of the Noun

There is ample evidence that the attributive adjective in a nominal AIC modifies the following noun, and not the infinitival clause as in a clausal AIC. First, as discussed above, nominal AICs differ from clausal AICs in their ability to host adjectives that do not independently select infinitival complements. The ungrammaticality of the impersonal paraphrases in (27c,d) suggests that we cannot adopt a clausal-AIC–style analysis, in which the attributive adjective would modify the infinitival clause and not the noun. Rather, we must assume that the attributive adjective modifies the adjacent noun directly, as in an ordinary DP.

One source of support for this idea is the fact that attributive adjectives in nominal AICs display all of the selectional restrictions associated with ordinary attributive adjec-

tives, as discussed above in section 1.3. Consider adjectives that describe a mental state or attribute, like *smart*. Such adjectives require that the nouns they modify denote sentient (most likely human) beings. It is impossible to construct a nominal AIC in which the adjective's selectional restrictions are violated. In clausal AICs, by contrast, such restrictions may be freely ignored. In (30a), the adjective *smart* is followed by the noun *sofa*, which fails to satisfy the adjective's selectional requirements; as a result, the only available interpretation of the sentence is a clausal-AIC interpretation, with the adjective modifying the infinitival clause, not the noun.[2] In (30b), by contrast, where the selectional restrictions of the adjective are met, both nominal- and clausal-AIC interpretations are available. In this case, the advisability of hiring Bob differs depending on which interpretation one chooses: on the nominal-AIC reading, Bob is perhaps too crafty to be a trustworthy accountant; on the clausal-AIC reading, hiring Bob is a crafty move and thus good.

(30) a. That is a smart sofa to buy.

b. Bob is a crafty person to hire as your accountant.

The fact that nominal-AIC interpretations are available only when the noun meets the selectional restrictions of the adjective suggests strongly that nominal-AIC adjectives modify the following noun directly, i.e., that whatever syntactic and semantic relationship holds between attributive adjectives and nouns in ordinary DPs holds between them in nominal AICs as well. Further evidence in favor of this conclusion comes from patterns of entailment. Unlike clausal AICs, nominal AICs fail to support entailment into supersets of

[2]As noted in chapter 1, (30a) may also have a nominal-AIC interpretation, though it is more readily available with an infinitival clause that better supports the suggestion of inappropriateness that is characteristic of nominal AICs: *That is a smart sofa to keep stashed away in your dusty tool shed!*

noun denotations. In this respect, nominal-AIC DPs behave like ordinary predicative DPs in which an attributive adjective modifies the following noun, while clausal AICs behave as if the attributive adjective does not modify the noun at all (as we saw in the previous chapter). The contrast is shown in (31) and (32).

(31) Nominal AIC

a. That is a **big sparrow** to see in this area. $\nrightarrow$ That is a **big bird** to see in this area.

b. That is a **big sparrow**. $\nrightarrow$ That is a **big bird**.

(32) Clausal AIC

a. That is a good **novel** to read. $\rightarrow$ That is a good **book** to read.

b. That is a **novel**. $\rightarrow$ That is a **book**.

The behavioral parallels between attributive adjectives in nominal AICs and those in ordinary DPs suggest that they bear the same relationship to the immediately following noun in both cases. Moreover, it is quite different from the adjective-noun relationship found in clausal AICs.

2.2.3 A Positive–Comparative Hybrid?

One of the most compelling characteristics of nominal AICs, from both a descriptive and a theoretical perspective, is their apparent hybrid nature: nominal AICs seem to have properties of both positives and comparatives. This observation applies equally to their syntax and to their semantics. Consider the examples in (33).

(33) a. *Middlemarch* is a long book. POSITIVE

b. *Middlemarch* is a longer book than *Pnin* is. COMPARATIVE

c. *Middlemarch* is a long book to assign. NOMINAL AIC

First, and perhaps most obviously, we can observe that the morphological form of the adjective in the nominal AIC in (33c) is the same as that in the ordinary positive in (33a). In both cases, we see the unmarked, morphologically basic form of the adjective, in contrast to the comparative form in (33b), which carries the *-er* inflection. The nominal AIC, however, also contains an infinitival clause that appears to function analogously to the comparative *than* clause in (33b); both clauses provide information about the relevant standard against which the length of *Middlemarch* is compared. The infinitival clause has no counterpart in the ordinary positive in (33a). The nominal AIC thus appears to be part positive, part comparative.

Two additional facts suggest connections between nominal AICs and comparatives. First, nominal AICs may be formed only with gradable adjectives. This is a property they share with comparatives, but not with positives (or, more precisely, with simple DPs that contain attributive adjectives). Adjectives that denote absolute, categorical properties, like *American* or *dead*, are infelicitous in nominal AICs, just as they are in comparatives:

(34) a. That is a dead bug.

b. # That is a deader/more dead bug than this one is.

c. # That is a dead bug to leave on your windowsill.

Example (34c) lacks the inappropriateness reading that is characteristic of nominal AICs. The bug in question cannot be dead to an inappropriate degree, as the requisite

scale of values simply does not exist for the adjective *dead*: something is either dead or it is not. This conclusion is reinforced by the unacceptability of the comparative in (34b). Nominal AICs, and the inappropriateness reading that epitomizes them, thus require a gradable adjective in order to be felicitous.

Second, the inappropriateness reading of a nominal AIC is lost when a standard of comparison is provided by an overt measure phrase. Consider the examples in (35).

(35) a. *Middlemarch* is a 700-page-long book to assign.

b. That is a 3-year-old car to drive across the country.

Neither sentence in (35) has the inappropriateness reading. (35a) tells us that *Middlemarch* is 700 pages long, and suggests that one ought to assign it—i.e., it has the exhortative reading identified in chapter 1—but there is no implication that the book is inappropriately long for the purpose at hand. The facts are analogous for (35b). We lose the signature interpretive characteristic of nominal AICs—inappropriateness—precisely when a standard of length or age is specified overtly by a measure phrase. This is consistent with an analysis in which the infinitival clause in a nominal AIC specifies a standard of comparison. On such a view, the measure phrases and infinitival clauses in (35) would provide conflicting standards, with the result that the nominal-AIC reading is unavailable. Note in this connection that when measure phrases occur in ordinary comparatives, they fail to denote a standard of comparison, indicating instead an interval by which the subject differs from the standard expressed by the *than* clause:[3]

[3]I use predicative comparatives instead of attributive comparatives in (36) because attributive comparatives do not allow the requisite plural inflection on the measure phrase: **Middlemarch is a 500-pages-longer book than Pnin is.*

(36) a. *Middlemarch* is 500 pages longer than *Pnin* is.

b. My car is 3 years younger than yours is.

The behavior of measure phrases in nominal AICs once again points to their hybrid nature. The loss of the inappropriateness reading suggests a conflict of standards of comparison; if the infinitival clause provides a standard, then the nominal AIC looks much like a comparative construction. The measure phrase, however, has a different semantics in nominal AICs than it does in comparatives: in the former it provides a standard of comparison, while in the latter it indicates the difference between the standard and another value. I discuss the positive–comparative issue in detail in section 2.3.

2.2.4 Nominal AICs and *too*

To conclude the overview of the basic properties of nominal AICs, I would like to point out some important differences between nominal AICs and sentences with *too*. At first sight, nominal AICs seem to be syntactically and semantically very similar to attributive *too* constructions, as shown in (37).

(37) a. *Middlemarch* is a long book to assign.

b. *Middlemarch* is too long a book to assign.

Both sentence types express the thought that *Middlemarch* is inappropriately long for the purpose of assigning a book. Moreover, in both cases, the relevant standard of length is expressed by an infinitival relative clause; this is in contrast to what we see with comparatives, where the standard is expressed by a finite clause. While the nominal AIC in (37a) may be less forceful in its assertion of inappropriateness than the *too* construction

in (37b), in both cases there is a sense that the relevant standard is exceeded. Given the very close syntactic and semantic correspondences between the two constructions, we may ask whether nominal AICs are simply a variant form of the attributive *too* construction.

Further consideration shows that the answer must be no. To begin, nominal AICs and *too* constructions differ markedly with respect to the semantic status of their infinitival clauses. In nominal AICs, the truth of the infinitival clause is presupposed, while in *too* constructions its falsity is entailed. The contrast is particularly salient in the past tense. Consider (38):

(38) a. *Middlemarch* was a long book to assign.

b. *Middlemarch* was too long a book to assign.

From the nominal AIC in (38a), we conclude that *Middlemarch* was in fact assigned. Consider the incongruity of the following conjunction: *#Middlemarch was a long book to assign, and in fact we didn't assign it.* Negating or questioning the nominal AIC does not alter the conclusion that the book was assigned, as shown in the infelicitous dialogues in (39). The content of the infinitival clause is thus presupposed true.

(39) a. A: *Middlemarch* was not a long book to assign.

B: #Then why didn't you assign it?

b. A: Was *Middlemarch* a long book to assign?

B: #Yes, so it's a good thing you didn't assign it.

The *too* construction in (38b), by contrast, gives rise to an entailment that the book was not assigned.[4] Consider the infelicity of the following: *#Middlemarch was too long a book to assign, but we assigned it.* Under negation and questioning, the conclusion that the book was not assigned vanishes, as shown in the perfectly felicitous dialogues in (40). This is the hallmark of semantic content that is entailed, not presupposed.

(40) a. A: *Middlemarch* was not too long a book to assign.

B: Is that why you assigned it?

b. A: Was *Middlemarch* too long a book to assign?

B: No, and it's a good thing you assigned it.

These data indicate a fundamental semantic difference between nominal AICs and *too* constructions. While both indicate some amount of inappropriateness, it is clear from the examples in (38) and (39) that nominal-AIC inappropriateness is not so great as to rule out the event or state denoted by the infinitival clause. On the contrary, it is presupposed true. In *too* constructions, by contrast, the inappropriateness is such that the infinitival-clause content is entailed to be false: in (38b), the length of *Middlemarch* is so great that one cannot assign it. Nominal AICs thus cannot be seen as simple variants of *too* constructions. The semantic divide between the two is far wider than the simple comparison in (37) suggests.

[4]More precisely, I claim that this entailment arises in the past tense when the infinitival clause is truly the argument of *too*. It is possible for sentences like (38b) to be used in situations where the event denoted by the infinitival clause took place; e.g., a student might complain about a book on a course evaluation form by saying *That was too long a book to assign.* For such cases, I assume that the infinitival clause is a relative-clause adjunct, just like a nominal-AIC infinitival, and not an argument of *too*. In order to force the negative-entailment reading that I have in mind, it suffices to add a resumptive pronoun to the infinitival relative, something that is possible with *too* but not with nominal AICs, as discussed below: *That was too long a book to assign it.* With the resumptive, all speakers I have consulted get the negative entailment in the past tense, and not the positive presupposition seen in nominal AICs. (Many thanks to Andrew Garrett for bringing this issue to my attention and for providing the course-evaluation example.)

A further index of the syntactic and semantic disparity between nominal AICs and *too* constructions is their different behavior with respect to the licensing of negative polarity items (NPIs). NPIs are not licensed in the infinitival clauses of nominal AICs, while they are licensed in the infinitival clauses of *too* constructions, as shown in (41) and (42).

(41) a. # *Middlemarch* is a long book for a teacher to **ever** assign.[5]

b. # That's a small increase to **give a damn** about.

(42) a. *Middlemarch* is too long a book for a teacher to **ever** assign.

b. That's too small an increase to **give a damn** about.

This difference in NPI licensing parallels the difference noted above regarding the semantic status of the infinitival-clause content. Nominal AICs, which in the past tense presuppose the truth of the event or state denoted by their infinitival relative clauses, fail to license NPIs in those clauses. Attributive *too* constructions entail the non-truth of their infinitival clauses and license NPIs in them.

Lastly, I note two important syntactic differences between nominal AICs and attributive *too* constructions. First, there is an obvious difference in the surface position of the attributive adjective in the two sentence types. In nominal AICs, the adjective occupies its customary place to the left of the noun. With attributive *too*, however, the adjective is pied-piped with *too* to a position to the left of the determiner. This position has been identified as the specifier of a functional projection above DP by Kennedy and Merchant (2000), who propose it as the landing site for *how*-plus-adjective strings in attributive comparatives. Note that in both attributive *too* constructions and attributive comparative questions, the

[5]Note that this example does not improve with the prescriptive word order, *ever to assign*.

head of this functional projection may optionally be lexicalized by *of*, as shown in (43). No such functional projection is involved in the derivation of nominal AICs, as shown in (44).

(43) a. *Middlemarch* is too long (of) a book to assign.

b. How long (of) a book is *Middlemarch*?

(44) *Middlemarch* is (#of) a long book to assign.

Second, nominal AICs differ syntactically from attributive *too* constructions in failing to license resumptive pronouns in the gap position of the infinitival relative. Consider the contrast in (45).

(45) a. # *Middlemarch* is a long book to assign it.

b. *Middlemarch* is too long a book to assign it.

Nominal AICs thus differ in important respects from *too* constructions, both semantically and syntactically. While I will not pursue an analysis of attributive *too* constructions here, I hope to have shown that nominal AICs are sufficiently different from them as to merit independent consideration.

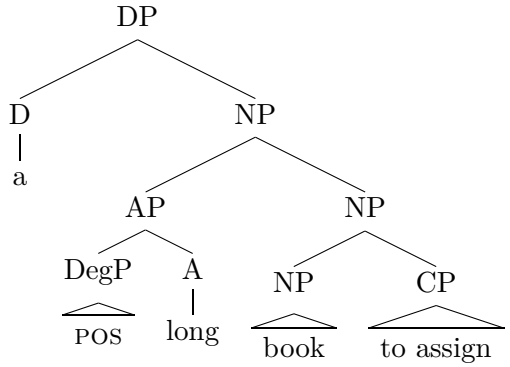
2.3 Nominal AICs are Positives

In this section I examine the syntax of nominal AICs. I devote particular attention to the apparent hybrid nature of nominal AICs, i.e., to the fact that they seem to have properties of both positives and comparatives. I show here that nominal AICs must be analyzed as positives. A wide range of syntactic and semantic phenomena support this conclusion, including the position of the infinitival relative, the distribution of nominal-AIC

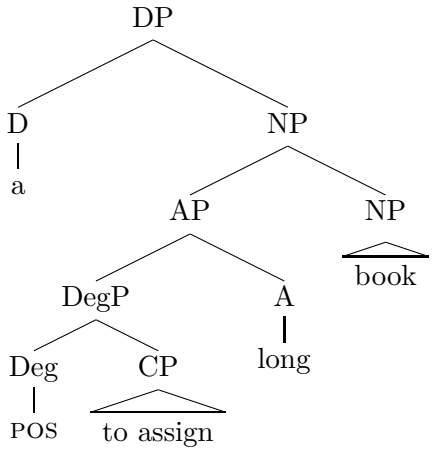
DPs, the licensing of parasitic gaps and NPIs, the interpretation of idioms, and the scope of quantified DPs in the infinitival clause with respect to the degree head. The syntactic analysis developed here sets the stage for the semantic analysis in the following section.

For the sake of explicitness and for ease of comparison, in (46) I present syntactic trees representing the positive (a) and comparative (b) analyses of nominal AICs. These trees are not fully articulated; in particular, the internal structure of the infinitival relative clauses is intentionally set aside for the moment, though we will soon see that it has important consequences for choosing between the two analyses. The chief structural difference between the two analyses is in the base position of the infinitival relative clause: on the positive analysis, it is adjoined to NP; on the comparative analysis, it is the complement of the degree head and undergoes obligatory rightward extraposition, just like the finite *than* clause in an ordinary attributive comparative (Bresnan 1973).

(46) a. Positive analysis:



b. Comparative analysis:



For both structures, I assume a traditional left-adjunction analysis of attributive AP, instead of an Abney (1987)-style structure with A^0 taking NP as its complement (for relevant discussion, see Svenonius 1994). I further assume, for explicitness, that DegP sits in SpecAP,[6] rather than in an adjoined position within AP, though the analysis to be presented does not rely on this fact in any crucial way.

2.3.1 Relative Clause Structure and Idiom Interpretation

The major structural difference between the positive and comparative analyses of nominal AICs involves the base position of the infinitival relative clause. The two proposals for the external syntax of this clause constrain the possible analyses of its internal syntax in testably different ways. In particular, they differ with respect to whether or not they permit an analysis in which the head of the relative clause—*book*, in (46)—is merged within the

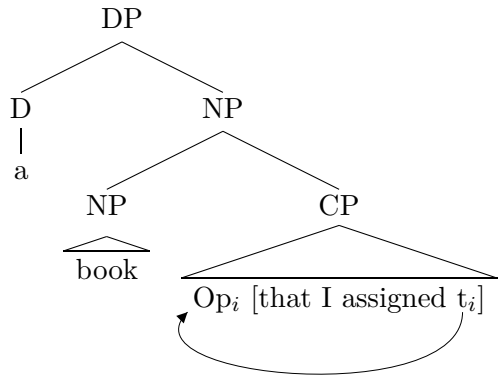
[6]More precisely, DegP is thematically distinct from other XPs that might merge first within AP—e.g., PP or CP complements of A^0—in that it is not an argument of the adjective. As is well known and discussed in section 3.3.2, English prenominal APs are barred from containing complement XPs, and so we cannot say that DegP is the complement of A^0 here. The complement-vs.-specifier distinction is, however, a theoretically problematic one: under the assumptions of bare phrase structure (Chomsky 1994), the distinction is reduced to first vs. second merge, respectively, and so we cannot distinguish DegP in (46) from illicit "complement" XPs on purely structural grounds. I suggest that the thematic distinction—arguments (PP, CP) vs. non-arguments (DegP)—is the crucial one. When I say that DegP is in "SpecAP," I thus mean this as a shorthand for saying that it is a first-merged non-argument of A^0.

relative clause: this is permitted on the positive analysis, but is impossible on the comparative analysis. Evidence from the interpretation of idioms in nominal-AIC infinitival relatives strongly suggests that a head-internal analysis must be possible, and thus that the positive analysis must be preferred over the comparative.

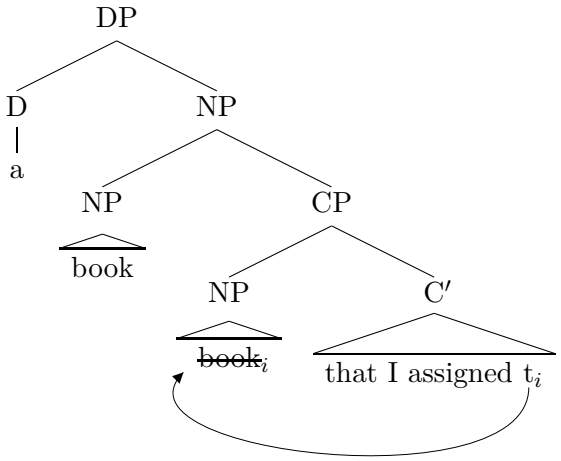
There are at least three widely accepted analyses of the internal syntax of restrictive relative clauses. On the traditional generative analysis, in which relative-clause gaps are recognized as having the basic properties of *wh*-movement (Chomsky 1977), a null operator is merged in the position of the gap and undergoes A′-movement to SpecCP. The head of the relative clause is merged outside the relative clause; the relative clause right-adjoins to the NP that contains its head. For this reason, the traditional analysis is commonly referred to as the "head-external" analysis of restrictive relatives. The second analysis is the so-called "matching" analysis, in which copies of the relative-clause head are merged both inside and outside the relative clause. The internal copy moves to SpecCP and deletes under identity with the external copy. This analysis dates at least to Carlson's (1977) treatment of restrictive relatives; see also Sauerland (1998). Finally, the "raising" analysis of restrictive relatives holds that the relative-clause head originates in the gap position and raises to SpecCP. Unlike in the matching analysis, however, there is no clause-external copy of the head; instead, the determiner simply selects CP as its complement. Vergnaud (1974) is recognized as the originator of this analysis by Kayne (1994) and Bianchi (1999), who note its indispensability for dealing with idiom-chunk relative-clause heads (as well as its compatibility with Kayne's linear correspondence axiom, the centerpiece of his theory of antisymmetry).

The three approaches to the internal syntax of restrictive relatives are sketched in (47), for the relative clause *a book that I assigned*.[7]

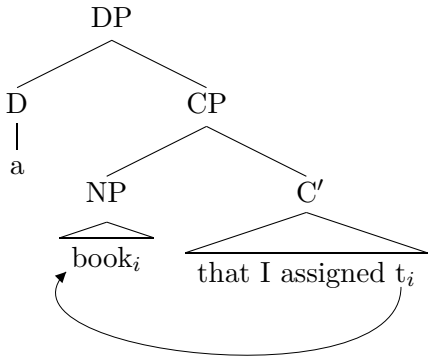
(47) a. Head-external:



b. Matching:



c. Raising:



Irrespective of the relative merits of these three analyses, we can immediately recognize that the positive and comparative proposals for nominal AICs make different predictions

[7]Note that the raising structure in (47c) is the one proposed by Kayne (1994) and adopted by Hulsey and Sauerland (2006). Bianchi (1999:169ff.) proposes a modification according to which the raised XP is not an NP, but rather a full DP containing a null relative D^0: [$_{\text{DP}}$ D$_{\text{REL}}$ *book*].

about which of the three are possible analyses for nominal-AIC infinitival relatives. In the positive analysis shown above in (46a), the infinitival relative adjoins to NP. It is thus compatible with the head-external and matching analyses outlined above, as both of these involve adjunction of the relative-clause CP to the head NP. It is also compatible in principle with the raising analysis, as nothing would prevent the head noun from merging inside the relative clause and raising to SpecCP.[8] The comparative analysis, sketched in (46b), is compatible only with the head-external analysis. The infinitival relative merges as the complement of Deg^0 and undergoes extraposition to the right edge of DP. It is thus never in the local configuration with the head noun that is required in order to implement the raising analysis. For the matching analysis, as well, it is commonly held that the internal and external heads must be in a local adjunction configuration like the one shown in (47b) (Hulsey and Sauerland 2006), and so the comparative treatment of nominal AICs likewise fails to allow this relative-clause analysis.

With these restrictions in mind, we may ask whether nominal AICs exhibit any behavior that requires a matching or raising analysis of their relative clauses. If so, then the comparative treatment of nominal AICs must be abandoned, as it allows only the head-external analysis. The grammaticality of nominal AICs based on idiom chunks provides strong support for the view that the raising analysis must be possible in nominal AICs, and thus that we must pursue the positive analysis. Consider the examples in (48).

(48) a. That is serious **headway** for them to **make** in one day.

[8]Note in addition that on the raising analysis the attributive AP would presumably have to originate with the head NP in its relative-clause–internal base position; otherwise the AP would be left-adjoined to CP. This change, far from being a major alteration, preserves the basic relationship between the head noun and AP/DegP that characterizes the positive analysis.

b. That is significant **advantage** for him to **take** of the situation.

The VPs *make headway* and *take advantage of* DP have non-compositional, idiomatic meanings which are thought to arise only when the verb and its arguments are merged into the derivation together. That the direct objects of these idioms can be relativized is taken by Bianchi (1999:43–45) and others as evidence that a raising analysis of relative clauses must be possible. On the raising analysis, the idiom-chunk head of the relative clause originates in its required base position within the idiomatic VP before raising to SpecCP. The head-external analysis does not allow such a derivation, and thus incorrectly predicts that idiom chunks should be impossible as relative-clause heads.[9] Under these assumptions, and given the acceptability of the idiom-chunk nominal AICs in (48), we must choose the positive analysis of nominal AICs, as it is the only one compatible with a raising analysis for relative clauses.

Note that this does not mean that the raising analysis must be employed for all nominal-AIC infinitival relatives. As mentioned above, the positive analysis of nominal AICs is compatible with all three approaches to relative-clause–internal syntax discussed above. Moreover, a one-size-fits-all approach to relative clauses has been argued to be inappropriate by, e.g., Hulsey and Sauerland (2006), who propose that at least the matching and raising structures must be available. What the idiom-chunk nominal AICs do, however, is cast doubt on the viability of the comparative analysis sketched in (46b), as this analysis does not allow the raising structure required for idiom interpretation.

[9]The matching analysis, for its part, has the head in the required VP-internal base position, but it also contains an external copy that fails to get the idiomatic interpretation.

2.3.2 The Size of the Gap

Both the size and the syntactic behavior of the gaps in nominal-AIC infinitival clauses support the view that these clauses are relative clauses. Evidence comes from the lack of variability in the size of the gap and from its ability to license parasitic gaps, both of which are well-known properties of relative-clause gaps. While these properties on their own do not necessarily exclude a comparative analysis, in combination with the facts discussed elsewhere in this section they strongly favor the positive analysis.

Nominal-AIC infinitival clauses have all the characteristic properties of relative clauses. There is always one DP-size gap in the surface form (not counting PRO, which occurs in subject position when the CP lacks an overt subject). The missing DP may occur in any syntactic position within the clause: subject, direct or indirect object, or object of preposition. Examples are shown in (49).

(49) a. Bob is a short guy ___ to be on the basketball team.

b. Bob is a short guy (for the basketball coach) to put ___ in the game.

c. Bob is a short guy (for the basketball coach) to give ___ much playing time.

d. Bob is a short guy (for the basketball coach) to get excited about ___.

The uniformity of the gap size in nominal-AIC infinitival clauses stands in contrast to the variability of the gap size in attributive comparative *than* clauses: *Bob assigned a longer book than Steve {assigned/did/∅}*. Unfortunately, it is impossible to use this as a test for eliminating the comparative analysis of nominal AICs, as these larger gap sizes are infelicitous in nominal AICs for independent reasons. VP ellipsis can never find an appropriate antecedent, as nominal-AIC DPs are restricted to the predicative positions of

copular clauses (see section 2.3.3 for discussion). And while it is possible to form nominal-AIC–like structures with bare *for* phrases on the model of the phrasal comparative *Bob assigned a longer book than Steve*, the thematic status of the argument of *for* in *That is a long book for Steve* is far less constrained than that of the bare argument in the phrasal comparative, which must be understood as the external argument of the elided verb *assign*. This in turn casts doubt on the idea that the two are structurally comparable. We must therefore content ourselves with the observation that a relative-clause analysis of nominal-AIC infinitival clauses is consistent with all of the available data, even if the apparent limitation to DP-size gaps does not in and of itself rule out a comparative analysis.

Also consistent with the relative-clause analysis is the ability of nominal-AIC infinitival-clause gaps to license parasitic gaps. Parasitic gaps require DP-size licensing gaps, as the comparative paradigm in (50) shows. While comparative subdeletion—i.e., movement of a DegP-size A′-operator in the comparative complement (Bresnan 1973; Kennedy 1999)—is grammatical on its own, it differs from comparative deletion (i.e., a DP-size operator) in being unable to license a parasitic gap.

(50) a. Bob has memorized more books than [Steve has read [$_{\text{DP}}$___]].

b. Bob has memorized more books than [Steve has read [$_{\text{DEGP}}$___] articles].

c. Bob has memorized more books than [Steve has read [$_{\text{DP}}$___] without understanding **pg**].

d. # Bob has memorized more books than [Steve has read [$_{\text{DEGP}}$___] articles without understanding **pg**].

Parasitic gaps are perfectly felicitous in nominal AICs, just as they are in ordinary

relative clauses, as shown in (51) and (52).

(51) a. *Middlemarch* is a long book to read ___ without taking notes on **pg**.

b. That is an expensive apartment to rent ___ without seeing **pg** in person.

(52) a. *Middlemarch* is the book that Bob read ___ without taking notes on **pg**.

b. That is the apartment that Susan rented ___ without seeing **pg** in person.

The acceptability of the parasitic gaps in (51), in combination with the data in (50), shows that the infinitival-clause gaps in nominal AICs are the size of DP. Thus, both the surface syntax of the infinitival clause and its behavior with respect to the licensing of parasitic gaps suggest that nominal-AIC infinitivals are indeed relative clauses. While the data in this section do not by themselves rule out the comparative analysis of nominal AICs, they offer additional support for the positive, relative-clause analysis suggested by the idiom data in the previous section.

2.3.3 The Distribution of Nominal-AIC DPs

Distributional data support the analysis of nominal AICs as positives, with the infinitival clause adjoined to NP as an infinitival relative. Nominal-AIC DPs are limited in their syntactic distribution, occurring only in the predicative position of copular clauses. This restriction is shared by other DPs that contain infinitival relatives, but not by attributive comparative DPs. The restriction follows naturally on the positive analysis of nominal AICs proposed here, but not on the comparative analysis, offering further support for the former.

It is no accident that all examples of nominal AICs discussed so far take the form of copular clauses. The nominal-AIC DPs of interest—i.e., the DPs that contain an attributive

adjective and an infinitival clause—always occur in the predicative position of such a clause. They cannot be construed referentially, and thus are unacceptable in the argument positions of non-copular clauses, where DPs are typically found; this is shown in (53).

(53) a. # Bob is reading a long book to assign.

b. # Susan went to a violent movie to take her nephew to.

c. # A tall person to hire is standing over there.

The restricted distribution of nominal-AIC DPs is paralleled by that of indefinite DPs that contain infinitival relatives. The examples in (54) differ from those in (53) only in their lack of attributive adjectives. Meanwhile, such DPs are perfectly fine in the predicative position of a copular clause, as shown in (55).

(54) a. # Bob is reading a book to assign.

b. # Susan went to a movie to take her nephew to.

c. # A person to hire is standing over there.

(55) a. That is a movie for Susan to take her nephew to.

b. Bob is a person to hire.

The parallel distribution of nominal-AIC DPs and ordinary indefinite DPs with infinitival relatives is unsurprising on the positive analysis of nominal AICs. Structurally speaking, on this analysis the infinitival clause is simply an infinitival relative adjoined to NP, and so whatever distributional restrictions exist for such DPs on independent grounds should also hold for nominal AICs. Even in the absence of a proposal for why these DPs should be distributionally restricted in the way that they are, we should expect to see them behave

in the same way, based on their structural similarity. These distributional facts, moreover, are difficult to reconcile with the comparative analysis of nominal AICs. As shown in (56), indefinite attributive comparative DPs are felicitous in non-predicative positions, in sharp contrast to nominal-AIC DPs.

(56) a. Bob is reading a longer book than Steve assigned.

b. Susan went to a more violent movie than she can take her nephew to.

c. A taller person than we've ever hired is standing over there.

If nominal-AIC DPs had the structure of attributive comparative DPs, then it would be difficult to explain why the former are barred from non-predicative positions while the latter are not. The restricted distribution of nominal-AIC DPs thus both supports the positive analysis and casts doubt on the comparative analysis.

It must be stressed that the restriction to predicative position is operative only for DPs that contain infinitival relatives. In particular, it does not hold for constructions with infinitival-relative purpose clauses. These are often indistinguishable on the surface from nominal AICs or other infinitival-relative–containing DPs. Consider the examples in (57).

(57) a. Bob found a book to assign.

b. Susan heard about a violent movie to take her nephew to.

On the face of it, the examples in (57) appear to violate the distributional restriction discussed above. As discussed by Berman (1974b), however, the infinitival relative clauses in (57) are not infinitival relatives adjoined to NP, but rather purpose infinitivals adjoined at the VP level (for detailed discussion of purpose clauses, see Jones 1991). To begin, the

examples in (57) lack the exhortative reading observed with DPs that contain infinitival relatives, as in (35) above: (57a) can be uttered felicitously in a situation where one's attitude towards assigning the book in question is neutral or even negative. Furthermore, consider that *wh*-movement from the direct object positions in (57) must strand the infinitival clause:

(58) a. Which book did Bob find to assign?

b. # Which book to assign did Bob find?[10]

The pattern in (58) makes sense only if we assume that the infinitival relative is adjoined not within DP, but at a higher level, such as VP. If it were adjoined within DP, it would be able to undergo *wh*-movement via pied-piping; for comparison, consider the finite relative clause in (59).

(59) a. Bob found a book that Susan had recommended.

b. Which book that Susan had recommended did Bob find?

Note further that the inappropriateness interpretation that is characteristic of nominal AICs is absent from the purpose infinitival sentence (57b). The sentence does not mean that Susan heard about a movie that was inappropriately violent for taking her nephew to; rather, it implies that she had been intending to take her nephew to a violent movie all along. The purpose infinitival interpretation arises most naturally with predicates of discovery or introduction like *find*, *bring*, and *hear about*. The interpretation is far less salient with a verb like *go*, which is why (53b) and (54b) are infelicitous: without the

[10]To the extent that (58b) is interpretable, the fronted DP must have the modal, exhortative interpretation characteristic of DPs that contain infinitival relatives: 'which book that one ought to assign did Bob find?' It cannot have the purpose infinitival interpretation seen in (57) and (58a). The fact that this example is at best marginal is, of course, due to the above-mentioned restriction of such DPs to predicative positions.

purpose infinitival parse, the only remaining interpretation is one in which the infinitival relative adjoins to NP, and this runs afoul of the predicative-position restriction. Once we control for the purpose infinitival reading and its different syntactic structure, we see that the predicative-position restriction on DPs with infinitival relatives remains valid.

Finally, we must note another apparent exception to the predicative-position restriction: specificational copular clauses (Higgins 1979). In such clauses, the predicative DP is found not in the ordinary post-copular position, but rather in subject position. The somewhat degraded acceptability of nominal-AIC DPs in specificational copular clauses, shown in (60), results not from any lack of predicativeness on the part of the DP, but rather from the fact that specificational-clause subjects are topics (Mikkelsen 2005), and nominal-AIC DPs make poor topics. They fail to occur with the definite article, for instance, in either predicational or specificational copular clauses, as shown in (61).

(60) a. ? A long book to assign is *Middlemarch*.

b. ? An old man for them to hire is Bob.

(61) a. # Susan is the young sibling to invite.[11]

b. # The young sibling to invite is Susan.

We thus see that nominal-AIC DPs are subject to a distributional restriction observed to hold independently for DPs that contain infinitival relatives. Moreover, attributive comparative DPs are not restricted in the same way. These facts support the positive analysis of nominal AICs, according to which the infinitival relative adjoins to NP.

[11]Note that this example and its specificational counterpart are acceptable on the exhortative reading: 'Susan is the young sibling that you should invite'. Importantly, though, they fail to have the nominal-AIC reading, with its characteristic inappropriateness: #'Susan is the sibling who is a bit young to invite'.

2.3.4 Crisp Judgments

Nominal AICs exhibit one of the signature interpretive characteristics of positives: they fail to allow "crisp judgments"[12] along the scales associated with their gradable adjectives. That is, the degree of the gradable property associated with the subject of a positive must not lie too close to the understood standard of comparison (Fara 2000; Kennedy 2007). In this, nominal AICs contrast with comparatives, in which the gap between the subject's degree of the property and the standard of comparison may be arbitrarily small. The infelicity of crisp judgments lends additional support to the positive analysis of nominal AICs.

It is well known that gradable predicates in the positive degree are subject to the inferential fallacy known as the Sorites Paradox, or the paradox of the heap. For a gradable adjective like *long*, the reasoning goes as follows: (i) a 700-page-long book is a long book; (ii) any book one page shorter than a long book is also a long book; (iii) a one-page-long book is a long book. The problem, clearly, is that in the recursive chain of inferences that fall under step (ii) of the fallacy, the understood standard of length is unwittingly passed. One might say that the problem arises because it is difficult or impossible to determine exactly where the relevant standard lies (Williamson 1994). Fara (2000) argues, however, that the more central issue is our willingness to accept the premise in (ii). This willingness arises not so much from lack of knowledge about where the standard lies as from a sense that the subject's degree of the gradable property in question exceeds the standard by an amount sufficient to license the premise in (ii). That is, in our example, even if we do not

[12]This is term was, to the best of my knowledge, coined by Kennedy (2007).

know exactly how many pages long a book must be in order to count as 'a long book', by accepting the premise in (i) we accept the notion that the standard is lower than 699 pages.

Fara concludes that in order for a positive gradable adjective to be used felicitously, there must be a "significant" gap between the subject's degree of the gradable property and the standard of comparison. Kennedy (2007) encodes this relation as follows: *subject's degree* $>!$ *standard of comparison*. This treatment differs from traditional accounts of the positive, in which the relation between the two degrees is a simple 'greater than or equal to', or $\geq$. The validity of the significant-gap view of the positive can be illustrated with examples like the following.

Imagine, for the sake of our discussion, that *Middlemarch* is 700 pages long, *Bleak House* 699, and *Pnin* 200. Under normal circumstances, *Middlemarch* is judged to exceed the standard for what counts as long if and only if *Bleak House* does as well, notwithstanding the fact that it is a full page longer. Meanwhile, either book may easily count as long even if *Pnin*, which is 500 pages shorter, does not. The examples in (62) bear out this intuition (adapted from Kennedy's (2007) example (28)).

(62) a. # *Middlemarch* is a long book compared to *Bleak House*.

b. *Middlemarch* is a long book compared to *Pnin*.

Kennedy (2007) uses paradigms like the one in (62) to show that positive gradable predicates require a significant distance between the subject's degree of the relevant gradable property and the standard of comparison. *Middlemarch* cannot exceed the standard of length in (62a)—and thus felicitously be judged long—while *Bleak House*, at one page shorter, fails to do so. We may infer from this that the standard of length for a felicitous

utterance of the sentence *Middlemarch is a long book* must fall somewhere below 699 pages.

Nominal AICs display exactly the same significant-gap requirement with respect to the standard of comparison. Let us suppose (however improbably) that the standard of length for books that one can reasonably assign is 699 pages; i.e., one can reasonably assign any book up to 699 pages in length. Further assume as above that *Middlemarch* is 700 pages long and that *Ulysses* is 900 pages long. Under these circumstances, we get a pattern of acceptability just like that seen in the examples in (62) above, as shown in (63).

(63) a. # *Middlemarch* is a long book to assign.

b. *Ulysses* is a long book to assign.

Nominal AICs thus behave exactly like ordinary positives with respect to the significant-gap requirement. Note that this behavior sets nominal AICs in stark contrast to comparatives, which are in no way subject to the significant-gap requirement. In comparatives, the gap between the subject's degree of the gradable property and the standard of comparison may be arbitrarily small. The difference in length between a 700-page-long book (*Middlemarch*) and a 699-page-long book (*Bleak House*) can be felicitously expressed with a comparative but not, as seen above and repeated here, with a positive:

(64) a. *Middlemarch* is a longer book than *Bleak House*.

b. # *Middlemarch* is a long book compared to *Bleak House*.

The significant-gap requirement—that is, the failure to license crisp judgments along a scale—further supports the positive analysis of nominal AICs. Alongside the phrase-structural criteria discussed in the previous subsections, the data here show that nominal

AICs not only look like positives with respect to their syntactic structure, but they behave like positives with respect to their semantic interpretation.

2.3.5 Scope of Quantifiers in the Infinitival Clause

A problem for the comparative analysis of nominal AICs is their failure to allow scopal interactions that are characteristic of ordinary comparatives. It is well known that quantified DPs within a finite comparative *than* clause may—and in many cases must—take wide scope with respect to the comparative degree morpheme itself. Quantificational DPs in nominal-AIC infinitival clauses, by contrast, are always interpreted within the scope of the positive degree morpheme (with one minor exception to be discussed below). The comparative analysis of nominal AICs fails to predict the absence of the wide-scope reading for these quantificational DPs, while the absence of this reading follows naturally on the positive analysis.

The examples in (65) illustrate the phenomenon in question (Larson 1988; Schwarzschild and Wilkinson 2002; Heim 2006). In each case, a quantificational element in the comparative clause scopes outside the comparative degree head; i.e., the 'greater than' relation between degrees denoted by *-er* lies within the scope of *every girl* or *exactly two girls* at LF. The authors cited here focus on predicative comparatives; the examples in (66) show that the same phenomenon occurs in attributive comparatives. (Logical translations are approximate, and are meant to show the scopal relations; in particular, these representations do not capture the presuppositions in (66) that all of, or at least two of, John's friends are men; for discussion, see Bresnan 1975.)

(65) a. John is taller than every girl is.

$\forall x[\textbf{girl}(x) \rightarrow \text{John's height} > x\text{'s height}]$

b. John is taller than exactly two girls are.

$|\lambda x.\textbf{girl}(x) \wedge \text{John's height} > x\text{'s height}| = 2$

(66) a. John is a taller man than all of his friends are.

$\textbf{man}(\text{John}) \wedge \forall x[\textbf{friend}(x) \rightarrow \text{John's height} > x\text{'s height}]$

b. John is a taller man than exactly two of his friends are.

$\textbf{man}(\text{John}) \wedge |\lambda x.\textbf{friend}(x) \wedge \text{John's height} > x\text{'s height}| = 2$

Example (65a) means that John is taller than the tallest girl. This intuition is captured by the semantic representation sketched for (65a), which results from the scopal relationship *every girl* $\succ$ *-er*. With the opposite scope, *-er* $\succ$ *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 is clearly not an available reading of the sentence. The other examples are interpreted analogously.

The wide scope of the quantificational DPs in (65) and (66) is surprising, given the syntactic structure of the sentences. Ordinarily, such quantificational elements scope no higher than the clause that immediately contains them. Schwarzschild and Wilkinson (2002) and Heim (2006) offer different but related solutions to the problem, the basic thrust of which is that it is not the quantificational elements themselves that raise to take wide scope, but the *than* clauses that contain them. With the entire *than* clause raised to a position above the comparative morpheme, any quantificational DPs within that clause take the comparative operator in their scope at LF.

The comparative analysis of nominal AICs leads us to expect the same scopal behavior for nominal-AIC infinitival clauses, as these merge in the same syntactic position as comparative *than* clauses. The examples in (67) demonstrate that this is clearly not the case.

(67) a. *Middlemarch* is a long book for every student to read.

b. *Middlemarch* is a long book for more than two students to read.

These examples must be interpreted with surface scope for their infinitival clauses, or more precisely for the quantificational DPs within their infinitival clauses. (67a) means that *Middlemarch* is longer than the standard for what one can reasonably expect all of the students to read; i.e., for the student who can read the least, it exceeds the length of the longest book that one can reasonably expect that student to read. Unlike the reading that would arise if *every student* took wide scope with respect to the positive morpheme, it does not rule out the possibility that there are students for whom it is perfectly reasonable to expect that they can read *Middlemarch*; it simply says that not all students fall into that category. The sentence in (67b) is interpreted similarly. It means that, of all the students, one cannot reasonably expect more than two of them to read *Middlemarch*. This is because the standard of comparison refers to the maximal degree of length d such that one can reasonably expect (any set of) more than two students to read a d-long book. Crucially, the sentence does not mean that, for some set of more than two students, one cannot reasonably expect them to read *Middlemarch*; this weaker reading would result from the quantificational DP *more than two students* taking wide scope with respect to the positive morpheme.

The fact that quantificational DPs in nominal-AIC infinitival clauses can only be interpreted with surface scope, and not with wide scope with respect to the positive degree morpheme, is a serious problem for the comparative analysis of nominal AICs. If nominal-AIC infinitival clauses are structurally analogous to finite *than* clauses—that is, if they merge as complements of Deg^0—then they should participate in the kinds of scopal interactions observed for comparative *than* clauses. On the positive analysis of nominal AICs, by contrast, the restriction to surface scope is a natural consequence of the merge position of the infinitival clause. Like all relative clauses, it is interpretable in its base position, adjoined to NP, and therefore is not subject to QR for interpretation. With no QR of the infinitival clause, there is no way for quantificational DPs contained within to outscope the positive morpheme in the matrix clause; the scope of these elements is clause-bounded in the usual way.

Two additional points related to these scope phenomena deserve a brief mention here, one concerning the scope of comparative *than* clauses, the other concerning the scope of quantificational DPs in nominal-AIC infinitival clauses. On the first point, Heim (2006) notes that in certain situations comparative *than* clauses appear not to take scope outside the comparative head *-er* (see also Rullmann 1995:112ff.). The clearest cases involve scopal interactions between *-er* and modals contained within the *than* clause. Both existentially quantified modals (*can*, *might*, *be allowed to*, etc.) and universally quantified modals (*must*, *need*, *have to*, *be required to*, etc.) are able to take wide or narrow scope with respect to matrix *-er*, depending on the context. The examples in (68) and (69) are based on examples from Heim (2006). (Here, I follow her practice of using ACC as a general abbreviation for

different types of modal accessibility relations.)

(68) Wide scope for *than* clause with modal:

a. This house is more spacious than you might think it is.

$\exists w \in$ ACC : house's actual spaciousness > house's putative spaciousness in w

b. Bob is older than he needs to be (to get a reduced kid's admission).[13]

$\forall w \in$ ACC : Bob's actual age > Bob's age in w

(69) Narrow scope for *than* clause with modal:

a. Susan is driving faster than she is allowed to drive.

Susan's actual speed > MAX($\lambda d.\exists w \in$ ACC : Susan drives d-fast in w)

b. Bob is more cautious than he needs to be (to get home safely).

Bob's actual cautiousness > MAX($\lambda d.\forall w \in$ ACC : Bob is d-cautious in w)

The semantic representations that accompany each example demonstrate the scopal interactions between comparative *-er* and the modals contained in the *than* clauses. One might argue that the availability of the narrow-scope readings for the *than* clauses in (69) undercuts the scopal argument against the comparative analysis of nominal AICs. If finite *than* clauses are able to take narrow scope with respect to the degree morpheme, then the narrow scope of nominal-AIC infinitival clauses observed above need not count as an argument against a comparative treatment of the construction. The difficulty for this line of argument is that, unlike finite *than* clauses in ordinary comparatives, the infinitival clauses in nominal AICs always take narrow scope. Scope variability of the type observed in (68)

[13]Heim (2006:12) attributes this example to Noah Constant.

and (69) is simply never seen with nominal AICs.[14] Thus, even if narrow scope on its own does not invalidate the comparative analysis of nominal AICs, the absence of wide-scope readings poses a serious challenge to this view.

The second point involves the possibility of wide-scope readings for particular quantificational DPs in nominal-AIC infinitival clauses. Consider the contrast in (70); focal emphasis is indicated in (70b) by capitalization. (As above, the semantic representations here are incomplete, and are intended to show the scopal relationships between the positive morpheme and quantificational elements within the infinitival clause. A detailed compositional semantics for nominal AICs will be given in section 2.4.)

(70) a. *Middlemarch* is a long book for every student to read.

M's length $>!$ MAX($\lambda d.\forall x$[**student**(x) $\rightarrow$ **to-read**(*a d-long book*)(x)])

'*Middlemarch* longer than what one can reasonably expect all of the students to read'

b. *Middlemarch* is a long book for EVERY student to read.

$\forall x$[**student**(x) $\rightarrow$ M's length $>!$ MAX(λd.**to-read**(*a d-long book*)(x))]

'*Middlemarch* is longer than what one can reasonably expect any of the students to read'

As indicated by the semantic representations and paraphrases given here, focal emphasis on the determiner *every* in (70b) allows the DP *every student* to take wide scope

[14]Unfortunately, it is difficult to test scopal interactions in nominal AICs by using modals like those seen in (68) and (69). The English lexical modals, like *can* and *must*, are inherently finite and thus unable to occur in nominal-AIC infinitival clauses. Moreover, as will be discussed in detail in section 2.4, infinitival relatives are associated with a default modality to which even periphrastic modals, like *be allowed to* and *have to*, are quantificationally subordinate.

with respect to the positive morpheme. On the face of it, this would appear to violate the generalization seen above, according to which nominal-AIC infinitival clauses (and the quantificational elements contained within them) always take narrow scope with respect to the positive. Two facts, however, suggest that this reading is not evidence of a comparative-like structure for nominal AICs. First, the force of the default modality associated with the infinitival relative (indicated above with the notation **to-read**) is the same in both (70a) and (70b). If the entire infinitival clause were raised to a position above the positive morpheme, then we would expect all quantificational elements within—i.e., both the DP *every student* and the default modal—to outscope the degree head. The fact that the modal interpretation is the same in both examples, however, suggests that only the DP *every student* actually undergoes a scopal change with respect to the positive morpheme. Second, the wide-scope reading for *every student* seems to require the phonological emphasis indicated above, which in turn suggests that its wide scope is the result of an association with focus. Wide-scope readings for quantificational DPs in ordinary comparatives like (65), (66), and (68), by contrast, require no such focal emphasis.

The scopal relationship between nominal-AIC infinitival clauses and the positive morpheme thus argues against the comparative analysis of nominal AICs. In combination with the facts discussed in the previous subsections, this weighs heavily in favor of the positive analysis.

2.3.6 NPI Licensing

Finally, nominal AICs differ sharply from comparatives with respect to the licensing of negative polarity items. NPIs may occur in the finite *than* clause of a comparative, but,

as we saw above in section 2.2.4, they are not licensed in the infinitival clause of a nominal AIC. This licensing disparity is a potential problem for the comparative analysis of nominal AICs.

On the comparative analysis of nominal AICs, the infinitival clause occupies a structural position analogous to that of the finite *than* clause in an ordinary attributive comparative. It merges as the complement of the degree head before undergoing rightward extraposition to reach its surface position.[15] We have already seen that the semantics of the positive degree morpheme is very similar to that of the comparative *-er* morpheme: the former encodes a 'significantly greater than' relation (>!) while the latter encodes the 'greater than' relation (>). Given the structural similarities, on the comparative analysis, between nominal-AIC infinitival clauses and attributive comparative *than* clauses, as well as the semantic similarities between the positive and comparative heads that select them, it is surprising to find that they differ with respect to NPI licensing, as shown in (71) and (72).

(71) a. # *Middlemarch* is a long book for Bob to **ever** assign.

b. # That's an old car for **anyone** to be interested in buying.

c. # That's a small increase for Bob to **give a damn** about.

(72) a. *Middlemarch* is a longer book than Bob has **ever** assigned.

b. That's an older car than **anyone** would be interested in buying.

[15]Not all analyses of attributive comparatives share this assumption, which goes back at least as far as Bresnan (1973). Kennedy and Merchant (2000) propose that *than* clauses merge as selected adjuncts within DegP, and that their initial merge position is to the right of NP. Lechner (2004) proposes an unorthodox raising analysis in which the AP–NP string is raised from within the *than* clause to the matrix clause; consequently there is no extraposition involved. The specific analysis of attributive comparatives is unimportant here, as the NPI licensing facts remain the same no matter which one is chosen.

c. That's a smaller increase than Bob should **give a damn** about.

The severity of the problem posed by this NPI-licensing disparity depends, of course, on which theory of NPI licensing one chooses. Indeed, the source of NPI licensing in comparatives is a matter of some debate. Many scholars follow the proposal of Hoeksema (1983) that finite *than* clauses are downward entailing and thus allow NPIs; Schwarzschild and Wilkinson (2002) dispute this characterization.[16] More recently, Heim (2006) has sketched a proposal according to which only certain areas of the *than* clause are downward entailing. I will not take a position on how NPIs are licensed in ordinary comparatives here. I will, however, describe in greater detail a strong semantic similarity between the positive morpheme and comparative *-er*, one that makes the NPI facts quite problematic for the comparative analysis if one assumes a purely semantic theory of NPI licensing.

Suppose, following common practice, that degree morphemes are determiners of degrees (for a typical implementation, see Rullmann 1995); that is, they take two sets of degrees as arguments, one the set of degrees associated with the subject (which I abbreviate D_{subj} here) and the other the standard of comparison, i.e., the set denoted by the *than* clause (D_{stnd}). There at least two conceivable denotations that one could ascribe to the comparative morpheme *-er*. First, *-er* could stipulate that the *than*-clause set be a proper subset of the subject set: $D_{subj} \supset D_{stnd}$. Alternatively, *-er* could specify a relation between the maximal elements of the two sets: $\textsc{max}(D_{subj}) > \textsc{max}(D_{stnd})$. In either case, if the positive morpheme, with its 'significantly greater than' denotation, >!, is given the same two sets of degrees as arguments, the truth of the resulting expression will guarantee the truth of the

[16] For a detailed overview of the monotonicity properties of various comparative constructions, see Smessaert (1996).

corresponding expression with comparative *-er*. This is problematic for the comparative analysis of nominal AICs for the following reason. If, as seems reasonable, NPI licensing in comparative *than* clauses is tied to some syntactico-semantic property of the comparative configuration—i.e., the phrase structure of the comparative construction along with one of the interpretations for *-er* described here—then on the comparative analysis of nominal AICs, we should expect NPIs to be licensed in their infinitival clauses. These occupy the same structural position as comparative *than* clauses, and the interpretation of the positive morpheme ensures that the relation that holds between the two sets of degrees will be true with *-er* whenever it is true with the positive. The infelicity of NPIs in nominal AICs, despite these strong syntactic and semantic parallels with attributive comparatives, must remain a mystery on the comparative analysis.

The evidence from NPI licensing is thus a problem for the comparative analysis of nominal AICs. The positive analysis, by contrast, does not make the erroneous prediction that NPIs should be allowed in nominal-AIC infinitival clauses. On the positive analysis, the infinitivals are simply ordinary relative clauses, and these do not in and of themselves permit NPIs, as is well known. (Of course, if there is an overt negative element within the infinitival clause, it will license NPIs in its scope; but this is true independently of the positive vs. comparative debate.) The behavior of NPIs thus leads us to prefer the positive analysis of nominal AICs over the comparative analysis.

2.4 The Semantics of Nominal AICs

In this section I present a compositional semantics for nominal AICs. As we will see, the semantic analysis proposed here, in tandem with the syntactic analysis discussed in section 2.3, allows us to derive the inappropriateness reading of nominal AICs in a completely compositional way. All assumptions about the interpretation of particular phrases or lexical items receive independent support from other constructions. The compositional derivation of the inappropriateness reading is a major result of the analysis. The semantic analysis will likewise explain why the inappropriateness reading disappears when an overt standard-denoting phrase is used.

I begin by laying out some background assumptions and describing the overall semantic framework for gradability that I adopt. I then go on to discuss the piece-by-piece composition of the nominal AIC and the derivation of the inappropriateness reading. Modality plays a crucial role in deriving inappropriateness; the final subsection contains discussion of modality both in the computation of the standard of comparison and in the matrix noun denotation in nominal AICs.

2.4.1 The Semantic Framework

For my implementation, I adopt the degree-based semantics for comparatives developed by Kennedy (1999). Kennedy's framework differs from many other degree-based approaches in that it is non-quantificational, taking the meanings of Deg^0 heads like *more/-er* et al. to involve simple comparison of degrees, rather than quantification over sets of degrees. Such an approach is appropriate for nominal AICs, as there are no scopal interactions between the

positive Deg^0 head POS and other quantificational elements that might require an analysis involving degree quantification (as discussed above in section 2.3.5).

The semantic analysis of gradability and comparison benefits greatly from the addition of degrees to the semantic ontology, and degree-based analyses have been used for many years (Cresswell 1976; Hellan 1981; von Stechow 1984); a particularly useful discussion of the benefits of degree-based analyses is found in chapter 1 of Kennedy (1999). Degrees are introduced as a solution to the problem of gradable predicates, which cannot be modeled via simple set membership like ordinary first-order properties. Whereas set membership is a binary relation that allows for no comparison between members—an element is either a member of the set or not, and is no more or less a member than any other member—gradable predicates require greater semantic flexibility. One person may be taller than another even while both, or neither, count as tall. Degree-based analyses handle such phenomena by having gradable predicates (such as the adjectives found in nominal AICs) relate the subjects they are predicated of to (sets of)[17] degrees on a semantic scale. For example, the gradable predicate *tall* relates its subjects to degrees on the scale of height, or vertical extent. Comparatives like *taller* then effect a comparison of (sets of) degrees on that scale. To count as tall is to correspond to a degree on the scale that exceeds a standard degree: the standard of comparison. A scenario in which A is taller than B but both A and B are tall is thus easily captured in a degree-based analysis.

In Kennedy's (1999) framework, gradable adjectives are modeled as functions, not

[17]As discussed in detail by Kennedy (1999), among others, a gradable predicate must relate its subject not just to a degree (a point on the relevant semantic scale), but to the range of degrees that fall between that point and an endpoint of the scale (an interval). Though theoretically important, the point/interval distinction may be set aside for purposes of the present discussion.

from individuals to truth values like ordinary first-order properties (type $\langle e, t\rangle$), but from individuals to degrees (type $\langle e, d\rangle$). Kennedy calls these MEASURE FUNCTIONS. Application of the gradable predicate **tall** to the argument *Bob* will thus yield the degree of Bob's height. Deg^0 heads like comparative *more/-er* and positive POS, meanwhile, denote functions that specify a relationship between that degree and another. The sentence *Bob is taller than Susan is* thus has the interpretation shown in (73). Gradable adjectives in the positive degree, as in the sentence *Bob is tall*, specify that the subject's degree (e.g., of height) exceeds a contextually defined standard value, labeled d_{STND} in (74). (In fact, as proposed by Fara (2000) and Kennedy (2007) and discussed in section 2.3.4, it must exceed the standard by a "significant" amount; this is indicated by the symbol $>!$ in (74).)

(73) $[\![\text{MORE}(\textbf{tall}(Susan))(\textbf{tall}(Bob))]\!] = 1$ iff $\textbf{tall}(Bob) > \textbf{tall}(Susan)$

(74) $[\![\text{POS}(d_{\text{STND}})(\textbf{tall}(Bob))]\!] = 1$ iff $\textbf{tall}(Bob) >! d_{\text{STND}}$

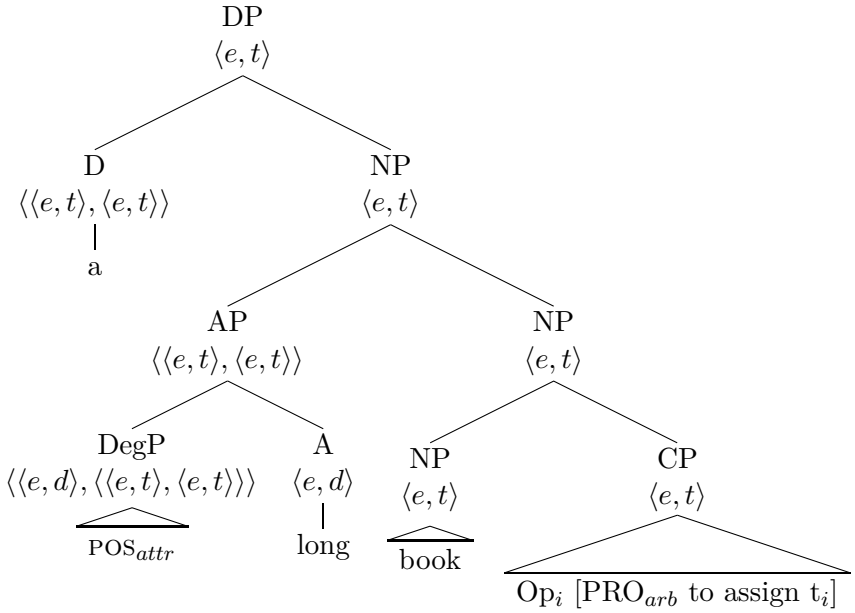
With this background on the Kennedy-style measure function approach to gradable adjectives, we are now ready to move on to the analysis of nominal AICs.

2.4.2 Composing Nominal AICs

Our goal in this section is to provide a compositional analysis of the predicative DP in a nominal AIC. I will assume, for simplicity, that the meaning of the sentence is derived by composing the matrix subject meaning directly with that of the predicative DP, which denotes a property of individuals (i.e., I follow Heim and Kratzer (1998:62) in proposing that, in predicative DPs, the indefinite article denotes the identity function on properties; see the appendix for a more complete derivation of the full sentence). For reference, a type-

adorned tree representing the predicative DP is shown in (75). I use POS_{attr} to indicate the attributive version of POS (which, as we will soon see, must take both the attributive adjective and the noun as arguments, unlike predicative POS). All composition is functional application, with the exception of that of the NP *book* and the infinitival relative CP, which combine by intersection.

(75)



2.4.2.1 A Semantics for Attributive Positives

I begin by examining the composition of the ordinary attributive positive *a long book*, setting aside the infinitival relative adjunct for the moment. The order of composition is straightforward: as shown in the tree in (75), the Deg^0 head POS_{attr} combines first with the adjective *long* and then with the NP, which for the moment is simply *book*. Lexical entries for the latter two are likewise straightforward, as shown in (76a,b). The only complication is the lexical entry for POS_{attr}: while the degree-comparison relation that it expresses is clearly the 'significantly exceeds' relation, $>!$ (as discussed in section 2.3.4), it is less immediately clear how we should describe the standard of comparison. For the moment, let us simply

use the place-holder d_{STND}. Our first attempt at a lexical entry for POS_{attr} is shown in (76c), with full composition and truth conditions for the sentence *Middlemarch is a long book* shown in (77).[18]

(76) a. $[\![long]\!] = \lambda x_e.\mathbf{long}(x)$ $\langle e, d\rangle$

b. $[\![book]\!] = \lambda x_e.\mathbf{book}(x)$ $\langle e, t\rangle$

c. First attempt:

$[\![\text{POS}_{attr}]\!] = \lambda G_{\langle e,d\rangle}\lambda P_{\langle e,t\rangle}\lambda x_e.G(x) >!\ d_{\text{STND}} \wedge P(x)$ $\langle ed, \langle et, et\rangle\rangle$

(77) a. $[\![\text{POS}_{attr}]\!]([\![long]\!])([\![book]\!])([\![Middlemarch]\!]) =$

$\mathbf{long}(Middlemarch) >!\ d_{\text{STND}} \wedge \mathbf{book}(Middlemarch)$

b. $\mathbf{long}(Middlemarch) >!\ d_{\text{STND}} \wedge \mathbf{book}(Middlemarch) = 1$ iff the degree of *Middlemarch*'s length significantly exceeds d_{STND} and *Middlemarch* is a book.

This first attempt at describing the meaning of POS_{attr} yields a reasonable result. The truth conditions described in (77b) capture the major meaning characteristics of the sentence *Middlemarch is a long book*, namely the comparison relation and the nominal predication. The principal deficiency of (77), and in turn of (76c), is the failure to describe the standard of comparison in any interesting way. Of primary importance for us is the fact, not simply that we can say more about the standard than that it is the contextually relevant one, but that we can provide at least a partially compositional description for it. We must therefore find a replacement for the generic standard d_{STND} used here.

[18]For the sake of legibility, I adopt the convention of omitting the angle brackets and comma for certain embedded ordered pairs. The typographically simplified $\langle ed, \langle et, et\rangle\rangle$ is thus equivalent to the fully specified $\langle\langle e, d\rangle, \langle\langle e, t\rangle, \langle e, t\rangle\rangle\rangle$.

In order to derive a more useful standard of comparison, I adopt the "standard-identification function," **s**, of Kennedy (2007). This is a function from gradable predicates to degrees (i.e., of type $\langle\langle e, d\rangle, d\rangle$) that, when applied to a gradable predicate, returns the relevant standard value on the scale associated with that gradable predicate. For example, **s**(**long**) yields a standard of length. By building **s** into the lexical entry for POS_{attr}, we attain a more refined denotation for the sentence, as shown in (78).

(78) a. Second attempt:

$$[\![\text{POS}_{attr}]\!] = \lambda G_{\langle e,d\rangle}\lambda P_{\langle e,t\rangle}\lambda x_e.G(x) >! \mathbf{s}(G) \wedge P(x)$$

b. $[\![\text{POS}_{attr}]\!]([\![long]\!])([\![book]\!])([\![Middlemarch]\!]) =$

$$\mathbf{long}(Middlemarch) >! \mathbf{s}(\mathbf{long}) \wedge \mathbf{book}(Middlemarch)$$

With our second attempt at fixing a lexical entry for POS_{attr}, the standard of comparison to which *Middlemarch*'s length is compared is the value **s**(**long**), rather than the all-purpose d_{STND}. This is an improvement over our first attempt: we can now specify that the standard of comparison is a standard of length.[19] Moreover, we are able to achieve this result compositionally, by having the standard-identification function **s** take as its argument the very gradable predicate that is the argument of POS_{attr}, as shown in the lexical entry in (78a). This analysis thus not only provides a more precise interpretation for the sentence than the previous one, but does so in a compositional way.

[19]Note, however, that even with d_{STND}, the standard of comparison cannot fail to be a standard of length. This is because the degrees that Deg^0 heads compare must always lie on the same scale; a comparison between degrees on different scales is a semantically ill-formed operation (see the discussion of "incommensurability" in Kennedy 1999). Our use of the standard-identification function **s** is nonetheless important, as it provides a basis for the more complex standard computation introduced below.

The standard of comparison derived in our second attempted lexical entry for POS_{attr}, however, fails to account for the effect of the noun meaning on the computation of the standard. Whereas the expression in (78b) gives us a general standard of length for the sentence *Middlemarch is a long book*, it seems that we need not simply a general standard, but a standard of length specifically for books. The problem is more readily apparent with examples like *Squeaky is a big mouse*, where it is asserted that the subject, Squeaky, surpasses not a general standard of comparison for size—presumably, no mouse surpasses such a standard—but rather a standard of size for mice. We can implement this standard specificity through the use of domain restriction on the gradable predicate that is the argument of **s**: specifically, the noun denotation is used to restrict the domain. Our third and final lexical entry for POS_{attr} and the composition of the full sentence are shown in (79).

(79) a. Third attempt ("just right"):

$$[\![\text{POS}_{attr}]\!] = \lambda G_{\langle e,d\rangle}\lambda P_{\langle e,t\rangle}\lambda x_e.G(x) >! \mathbf{s}(\lambda y_e : P(y).G(y)) \wedge P(x)$$

b. $[\![\text{POS}_{attr}]\!]([\![long]\!])([\![book]\!])([\![Middlemarch]\!]) =$

$$\mathbf{long}(Middlemarch) >! \mathbf{s}(\lambda x_e : \mathbf{book}(x).\mathbf{long}(x)) \wedge \mathbf{book}(Middlemarch)$$

The lexical entry for POS_{attr} in (79a) differs from that in (78a) only in the addition of domain restriction to the argument of **s**. This addition nonetheless has a significant effect on the standard of comparison that the subject is asserted to exceed. In (78), the standard **s**(**long**) is computed by considering the entire domain of the gradable predicate **long**—i.e., everything that has a measurable length, or physical extent—and inputting it to the standard-identification function **s**. We may write **s**(**long**) equivalently as $\mathbf{s}(\lambda x_e.\mathbf{long}(x))$. In (79), by contrast, the domain of the gradable predicate is restricted to just those things

that are in the extension of the noun predicate, **book**. That is, the input to **s** is the set of lengths, not of everything that has length, but of books. The standard that is the output of **s** is, correspondingly, a standard of length for books, not simply for things in general.

The use of domain restriction for attributive positives here finds a precedent in Kennedy's (2007) use of domain restriction to analyze predicative positives with *for* phrases, i.e., sentences like *Middlemarch is long for a book* and *Squeaky is big for a mouse*. The noun in an attributive positive has a semantic effect—adjustment and refinement of the standard of comparison relative to a particular noun meaning—that is quite similar to that of a *for* phrase in a predicative positive. It is crucial to note, however, that this effect is not obligatory for all attributive positives. That is, while the noun in an attributive positive may restrict the domain of the input to **s**, it need not do so. Kennedy (2007:11) offers the example in (80) as an illustration. (For relevant discussion, see also Siegel 1976:72ff.)

(80) Kyle's car is an expensive BMW, though it's not expensive for a BMW. In fact, it's the least expensive model they make.

In (80), the standard in the attributive positive *an expensive BMW* need not be a standard whose domain is restricted to BMWs; it can be a more general standard, e.g., one according to which all BMWs count as expensive.

The fact that noun-based domain restriction of the input to **s** is not a completely general phenomenon in attributive positives means that the lexical entry for POS_{attr} given in (79a) cannot be correct for all attributive positives, as it builds the noun-based domain restriction on **s** directly into the meaning of the Deg^0 head. I nonetheless keep this lexical entry for my analysis of nominal AICs. As we will see below in section 2.4.3, the NP in

a nominal AIC always restricts the domain of the input to **s**; indeed, I will argue that this is a crucial part of deriving the inappropriateness reading. As domain restriction is systematically present in nominal AICs, I believe it is appropriate to build it directly into the compositional semantics of the construction. Of course, this comes at the cost of a proliferation of POS_{attr} entries in our lexicon: one with domain restriction, one without. It is equally possible—perhaps preferable—to attribute this variation to pragmatics, i.e., to have only an entry for POS_{attr} like the one in (78a) and to allow the domain of the input to **s** to be restricted by some contextually salient property. As Kennedy (2007:12) notes, "A modified noun denotation is arguably the most salient property at the point of interpreting the adjectival predicate, explaining the strong tendency for it to be used as the comparison class [i.e., domain restrictor —NF]." Here I opt instead for the semantic approach of (79a). Note, though, that this is in no way crucial for the analysis, and that the semantics presented below could equally well be implemented by having the NP meaning restrict the domain of the input to **s** by some pragmatic means in nominal AICs.

Moving forward with the semantic approach to domain restriction and the lexical entry in (79a), we must note that, in order for our domain restriction analysis of attributive positives to work compositionally, it is crucial that POS_{attr} take the noun as one of its arguments. This is the reason why the AP and NP nodes in the tree in (75) combine by functional application and not by intersection, and why each attempted lexical entry for POS_{attr}, beginning with (76c), states that the matrix subject belongs to the category expressed by the noun argument (this is the '$\wedge P(x)$' portion of each lexical entry). Though we could achieve the conjunction expressed in our final lexical entry in (79a) by simply

intersecting AP with NP, such an analysis would leave us unable to derive the requisite domain restriction on the argument of **s** compositionally.

Two comments are in order here. First, by building a conjunction of the comparison relation, $G(x) >! \mathbf{s}(\lambda y : P(y).G(y))$, and the noun predication, $P(x)$, into the denotation of $\textsc{pos}_{attr}$, we capture the fact that the matrix subject of a nominal AIC is invariably asserted to belong to the category denoted by the matrix noun. There are no nominal AICs built from adjectives like *fake* or *alleged*, which, when combined with a noun denotation, return a property whose membership is (or at least may be) disjoint from that of the noun property. A conjunction analysis of the AP–NP composition thus does not run afoul of the adjectival semantics. (Recall also that the NP meaning is used to compute the domain restriction on the argument of **s** in the comparison relation; the AP–NP composition is thus by no means purely intersective.)

Second, contrary to what one might initially expect, the conjunction analysis does not fail to capture the ambiguity of AP–NP combinations like *beautiful dancer*. This phrase can have either an ordinary intersective meaning ('beautiful, and also a dancer') or a quasi-adverbial meaning ('beautiful as a dancer; dances beautifully'). Nominal AICs may be constructed from both meanings, as shown in (81).

(81) a. Susan is a beautiful dancer to conceal under so much makeup.

b. Susan is a beautiful dancer to pair with such a clumsy partner.

It has long been thought that the quasi-adverbial meaning requires AP to be of type $\langle\langle e,t\rangle,\langle e,t\rangle\rangle$ precisely so that it can denote something other than conjunction with NP (Siegel 1976). More recently, there have been proposals for a modified conjunction analysis

of such phrases (e.g., that of Larson (1998), who proposes that the adjective modifies an event argument associated with the noun *dancer*). I suggest that the ambiguity be modeled as an ambiguity in the choice of semantic scale associated with the gradable adjective *beautiful*. On the intersective meaning shown in (81a), *beautiful* is associated with the scale of physical beauty; on the quasi-adverbial meaning in (81b), it is associated with the scale of physical grace or dexterity. Importantly, I propose that the choice between the two scales is a pragmatically determined one, and that it does not stem from any structural difference between sentences involving the two meanings. I know of no structural characteristics or syntactic phenomena that distinguish between the two readings; they are differentiated with respect to patterns of inference, not structure. From a syntactic and type-logical perspective, then, our conjunction analysis of the AP–NP composition, embodied in our lexical entry (79a) for POS_{attr}, is fully justified.

2.4.2.2 Adding the Infinitival Relative

We can now take the basic semantics for attributive positives developed in the last subsection and use it to analyze nominal AICs. Recall from the discussion in section 2.3 that a nominal AIC is an attributive positive that contains an infinitival relative clause adjoined to the noun; this is the structure shown in the tree in (75). With the lexical entry for POS_{attr} fixed as in (79a), all that remains for us is to consider the effect of the infinitival relative on the denotation of the NP node that composes with AP, i.e., the second argument of POS_{attr} (signified by the variable P in (79a)).

The structure of the infinitival relative is straightforward. For simplicity, I will consider only the traditional, head-external analysis of relative clauses here, but the semantic types

and denotations can be worked out unproblematically on the raising and matching analyses, as well, both of which are compatible with the positive analysis of nominal AICs (cf. the discussion in 2.3.1; Sauerland 2004; Hulsey and Sauerland 2006). On the head-external analysis, the $[+wh]$ null operator originates in a DP position inside the infinitival clause and moves to SpecCP, abstracting over its trace to yield a CP constituent of type $\langle e, t\rangle$. The infinitival relative CP adjoins to NP; semantically, the two like-typed constituents are composed via intersection. Their composition is depicted in the tree above in (75).

The semantics of the infinitival relative is somewhat more complex, and is discussed in greater detail in the next subsection. For purposes of showing its place in the overall semantics of the nominal AIC, for the moment I use the place-holder lexical entry $\lambda x \lambda y.\textbf{to-assign}(x)(y)$ for the infinitival verb *assign*. Furthermore, for our parade example, *Middlemarch is a long book to assign*, I represent the arbitrary PRO_{arb} subject of the infinitival relative clause with the constant **a**, of type e. The denotations of the bare NP, its CP adjunct, and the larger NP that they form are shown in (82).

(82) a. $[\![book]\!] = \lambda x_e.\textbf{book}(x)$

b. $[\![\text{Op}_i\ [\text{PRO}_{arb}\ \textit{to assign}\ \text{t}_i]]\!] = \lambda x_e.\textbf{to-assign}(x)(\textbf{a})$

c. $[\![book\ [\text{Op}_i\ [\text{PRO}_{arb}\ \textit{to assign}\ \text{t}_i]]]\!] = \lambda x_e.\textbf{book}(x) \wedge \textbf{to-assign}(x)(\textbf{a})$

The expression in (82c) is the second argument of POS_{attr} in the nominal AIC. It combines with POS_{attr} in exactly the way described in the previous subsection: it restricts the domain of the gradable predicate that is the input to the standard-identification function **s**, and it is predicated of the matrix subject, with the resulting proposition conjoined with the comparison relation. The full composition of the nominal AIC is shown in (83).

(83) $[\![\text{POS}_{attr}]\!]([\![long]\!])([\![book\ [\text{Op}_i\ [\text{PRO}_{arb}\ to\ assign\ \text{t}_i]]]\!])([\![Middlemarch]\!]) =$

$\mathbf{long}(Middlemarch) >! \mathbf{s}(\lambda x_e : \mathbf{book}(x) \wedge \mathbf{to\text{-}assign}(x)(\mathbf{a}).\mathbf{long}(x)) \wedge$

$\mathbf{book}(Middlemarch) \wedge \mathbf{to\text{-}assign}(Middlemarch)(\mathbf{a})$

The nominal AIC meaning shown in (83) is structurally parallel to the ordinary attributive positive meaning in (79b). The lone difference is that all occurrences of the simple noun denotation $\lambda x_e.\mathbf{book}(x)$ have been replaced by the noun-plus-infinitival relative denotation $\lambda x_e.\mathbf{book}(x) \wedge \mathbf{to\text{-}assign}(x)(\mathbf{a})$. Most important for our purposes is the difference this causes for the computation of the standard of comparison. For the attributive positive in (79b), we restricted the domain of the gradable predicate **long** to just those entities that are books, and thereby derived a standard of length for books. For the nominal AIC in (83), we restrict the domain of the gradable predicate to just those entities that are books and that also satisfy the theme role of the predicate **to-assign**: $\mathbf{s}(\lambda x_e : \mathbf{book}(x) \wedge \mathbf{to\text{-}assign}(x)(\mathbf{a}).\mathbf{long}(x))$. I now turn to a more detailed examination of the infinitival relative semantics in order to determine what this standard description means and how it helps us derive the inappropriateness reading of nominal AICs.

2.4.3 Inappropriateness from Modal Standards

In this section I discuss the modality of the infinitival clause in nominal AICs and its role in producing the interpretation of inappropriateness associated with the construction. I propose that the infinitival is associated with a future-oriented modality, adopting a common approach to the semantics of infinitival relatives (Kratzer 1981, 1991; Hackl and Nissenbaum 2003). This modal interpretation, in combination with the comparison relation expressed

by POS_{attr}, gives rise to the inappropriateness reading.

Recall from earlier discussion that one of the most salient interpretive features of nominal AICs is the sense of inappropriateness associated with the content of the infinitival clause. When we say that *Middlemarch* is a long book to assign, we understand that it is inappropriate or at least unlikely for *Middlemarch* to be assigned. *Middlemarch* is inappropriately long for present purposes, namely for the purpose of assigning a book. One of the benefits of the semantic analysis of nominal AICs presented in this section is that it allows us to pinpoint the source of the inappropriateness: it is the presence of a 'significantly greater than' relation between the reference value and a standard value that refers to what is 'to be done'. In examples above I have abbreviated the infinitival meaning with the symbol **to-assign**. In this section, I propose a modal analysis of the infinitival clause that allows us to describe the standard of comparison in precise way, and thereby to derive the inappropriateness interpretation.

The infinitival clause in a nominal AIC tells us something about what is likely, reasonable, permissible, or desirable given the facts of the world. It thus involves a circumstantial modal base with a future-oriented modal ordering source (Kratzer 1981, 1991).[20] With a properly intensionalized implementation of our semantic analysis of nominal AICs, we can capture this meaning precisely. I propose that the infinitival clause lies within the scope of a future-oriented modal, which I call *fut*. The lexical item *fut* specifies a modal ordering source, FUT; that is, it specifies a set of propositions—in this case, those consistent

[20]Hackl and Nissenbaum (2003) propose that a bouletic ordering source is involved in the semantics of infinitival relatives. It seems to me, however, that the modality is somewhat more general. That is, the modality associated with nominal AICs and infinitival relatives typically makes reference not just to what is desirable, but to how the future must be according to norms of likelihood, stereotypicality, reason, etc. I thus prefer to call nominal-AIC modality "future-oriented" rather than bouletic.

with what is likely, reasonable, permissible, or desirable—and imposes a partial ordering on the set of accessible worlds based on their compatibility with that set of propositions. For the proposition p that results from saturating the infinitival relative clause with the matrix subject (as shown above), *fut* tells us that p is significantly more compatible with the future-oriented modal ideal than the relevant standard. Formally, this is implemented by stating that the most FUT-compatible world in which p is true is significantly more compatible with the ideal than the standard for most-FUT-compatible worlds in which other possible propositions resulting from saturation of the infinitival relative clause are true.

Our place-holder expression **to-assign**, repeated in (84a), can now be rewritten as shown in (84b); truth conditions are given in (84c). (Note: $\mathbf{s^w}$ is a standard-identification function that operates on worlds instead of degrees. For a full exposition of the intensional semantics assumed here, see the appendix, as well as the discussion of clausal-AIC modality in section 3.4.2.)

(84) a. Extensional:

$\lambda x_e.\mathbf{to\text{-}assign}(x)(\mathbf{a})$

b. Intensional:

$\lambda w_s \lambda x_e.\lambda w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(x)(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(x)(\mathbf{a}) \rightarrow w' \leq_{\mathrm{FUT}(w)} w'']] <!_{\mathrm{FUT}(w)} \mathbf{s^w}(\lambda y_e.\lambda w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a}) \rightarrow w' \leq_{\mathrm{FUT}(w)} w'']])$

c. Truth conditions:

Let us abbreviate the expression in (84b) as $\mathcal{CP}$. For any world w and individual x, $\mathcal{CP}(w)(x) = 1$ iff the world most consistent with FUT(w) in which one

assigns x is significantly more consistent with FUT(w) than the standard for most-consistent-with-FUT(w) worlds in which one assigns something.

The modalized expression shown in (84b) takes the place of **to-assign** in the composition of the nominal AIC. Importantly, this means that the predicate used to restrict the domain of the input to the standard-identification function **s** now contains a modal component. The NP that serves as the second argument of POS_{attr} is derived by intersection of the noun *book* and the modalized infinitival relative. Its denotation is shown in (85). (See the appendix for a fully intensional nominal-AIC derivation.)

(85) $[\![book\ [\text{Op}_i\ [\text{PRO}_{arb}\ to\ assign\ \text{t}_i]]]\!] =$

$\lambda w \lambda x.\mathbf{book}(w)(x) \wedge \lnot w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(x)(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(x)(\mathbf{a})$

$\rightarrow w' \leq_{\text{FUT}(w)} w'']] <!_{\text{FUT}(w)}\ \mathbf{s^w}(\lambda y_e.\lnot w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a}) \wedge \forall w''_s[w'' \in$

$\lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a}) \rightarrow w' \leq_{\text{FUT}(w)} w'']])$

With this predicate as the domain restriction, the standard of comparison for our nominal AIC is modalized. 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 likely to be the case, what is typically the case, what might reasonably be the case, or other situations specified by a future-oriented modal ordering source. Note in addition that the base world for the modal is the same as the world of evaluation for the noun predicate, **book**. This allows us to capture the fact that the matrix subject is asserted to be a member of the set denoted by the noun in the base world (in our default example, the actual world), a welcome consequence. If it is true in the actual world that *Middlemarch* is a long book to assign, then it must be true in the actual world that *Middlemarch* is a book.

By putting the modalized standard of comparison together with the 'significantly exceeds' comparison relation expressed by POS_{attr}, we derive the inappropriateness reading of nominal AICs in a straightforward way. The compositional interpretation of *Middlemarch is a long book to assign*—derived by integrating the modal analysis of the infinitival relative with the semantics for attributive positives developed in section 2.4.2—states that the length of *Middlemarch* significantly exceeds the standard of length for books that are likely to be assigned, are typically assigned, might reasonably be assigned, etc. This, I claim, is the source of the inappropriateness reading. To have a standard of comparison modalized in the way described here, and to assert that an entity significantly exceeds that standard, is to say that there is something inappropriate about the entity in question (or, more specifically, about its length or whatever other gradable property is involved). The inappropriateness reading thus arises naturally and compositionally from the interaction between the comparison relation expressed by POS_{attr} and the modalized domain restriction on the argument of the standard-identification function **s**.

Furthermore, we now have an explanation for why the inappropriateness reading disappears in the presence of an overt measure phrase, as shown above in (35). In such cases, the standard of comparison is provided directly by the measure phrase; the standard-identification function **s** plays no role in its determination.[21] The sentence *Middlemarch is a 700-page-long book to assign* thus means that *Middlemarch* is (at least) 700 pages long, and that it is a book that one should assign. With **s** out of the picture, the infinitival relative cannot perform the domain restriction that influences the standard of comparison and thus

[21] Moreover, the relevant degree comparison is 'greater than or equal to' rather than 'significantly exceeds'. Svenonius and Kennedy (to appear) treat such examples as involving a degree head, MEAS, that is distinct from POS.

cannot give rise to the inappropriateness reading; instead, it gets the exhortative reading, just like an ordinary infinitival relative adjunct. The disappearance of the inappropriateness reading in the presence of an overt measure phrase strongly supports the analysis developed here, in which inappropriateness is derived from the effect of the infinitival relative on the standard of comparison.

As an additional note on the composition of the infinitival relative clause, it is possible that the future-oriented modal ordering source specified by *fut* is a modal default associated with the complementizer *for* that heads the infinitival clause. First, recall that *for* is clearly a complementizer in nominal AICs, and not a preposition, despite its absence from certain examples: infinitival relatives generally, including those in nominal AICs, omit *for* when there is no overt subject but otherwise must have it. Its status as a complementizer is confirmed by its ability to introduce thematically deficient expletive subjects, as in examples like *This is a small room for there to be so many chairs in.* It has long been noted that the complementizer *for* has a distinct meaning associated with it that is semantically close to the modal meaning outlined here. Kiparsky and Kiparsky (1970:169) identify the quality associated with *for* as "emotivity," writing, "Emotive complements are those to which the speaker expresses a subjective, emotional, or evaluative reaction." In their formulation, *for* complements are concerned with "the subjective value of a proposition rather than knowledge about it or its truth value." Bresnan (1972:84) writes that *for* complements can "be interpreted as describing unrealized states of affairs, both future and hypothetical," and notes that attempts to describe the special meaning of the complementizer *for* go back at least to Jespersen. The future-oriented modal interpretation associated with infinitival

relatives is very much of a piece with the overall semantic characterization of *for* offered by these authors, particularly with that of Bresnan. There is thus some independent support for the proposal that nominal-AIC infinitival clauses, which are headed by *for*, are associated with a future-oriented modality.

I have shown in this section that the inappropriateness interpretation of nominal AICs arises straightforwardly from the interaction between the 'significantly exceeds' relation denoted by POS_{attr} and the modalized standard of comparison. A book that significantly exceeds the standard of length for books that get assigned in worlds that conform to what is likely to be the case, what is typically the case, what might reasonably be the case, and so on, is a book that one ought not assign. I have shown here that this interpretive characteristic of nominal AICs, which on first inspection seems puzzling and idiosyncratic, follows completely naturally from the interaction of two independent factors: the meaning of POS_{attr} and the modality of the infinitival clause. The fact that our analysis captures the inappropriateness interpretation in a non-stipulative and fully compositional way lends strong support to the approach to nominal AICs developed here.

2.4.4 Modality beyond the Standard

The modality associated with the infinitival relative clause shows up not only in the computation of the standard of comparison in nominal AICs, but also as part of the main nominal predication of the sentence. I suggest in this section that the modality may help to explain an important semantic difference between nominal AICs and attributive *too* constructions discussed above in section 2.2.4.

Recall from our lexical entry for POS_{attr} in (79a), repeated here, that the noun meaning

is lambda-converted into two places, represented by the variable P:

(79a) $[\![\text{POS}_{attr}]\!] = \lambda G_{\langle e,d\rangle}\lambda P_{\langle e,t\rangle}\lambda x_e.G(x) >! \mathbf{s}(\lambda y_e : P(y).G(y)) \wedge P(x)$

The NP meaning, which takes the place of the variable P when the full sentence is composed, is shown above in (85). It consists of a conjunction of the noun meaning (**book**) and the infinitival relative meaning, discussed at length in the previous section. Thus, when we say that *Middlemarch* is a long book to assign, apart from the comparison relation, we assert both that *Middlemarch* is a book and that it is something that gets assigned in worlds consistent with what is likely, reasonable, permissible, etc.

At first sight, this appears to pose a semantic problem for our analysis. How can we reconcile the inappropriateness interpretation that so saliently characterizes nominal AICs with the assertion that the matrix subject is something that is likely to be, typically is, or might reasonably be assigned? Doesn't this fly in the face of the intuition that if *Middlemarch* is a long book to assign, it is too long to assign?

I suggest that there is in fact no contradiction here, and that the semantic representation we derive for the complete sentence might actually help us to make sense of an important difference between nominal AICs and attributive *too*. The modalized infinitival relative is a component of both the domain restriction on the standard of comparison and the main sentence predication. It is thus simultaneously the case that the subject's degree of length significantly exceeds the standard of length for books that likely/typically/reasonably get assigned and that the subject is a book that likely/typically/reasonably gets assigned. The subject surpasses a standard of length for a category of things to which it itself belongs. Notice that there is nothing wrong with this schema in general: there is no contradiction

whatsoever in something's exceeding the standard of length for books while itself being a book. Obviously, it is the modal meaning component that makes this situation appear contradictory: how can something exceed a standard for what is reasonable and still itself be reasonable? I suggest that as long as we accept that the standard value is not a maximum limit on what is likely/typical/reasonable, the threat of contradiction dissipates. The standard could be an average value for books that likely/typically/reasonably get assigned, or it could be higher or lower than the mathematical average (assuming that such a figure could be calculated to begin with). All that is required in order for the present analysis to go through is that the standard not be a value so high that anything higher is out of the 'reasonable' category. Moreover, as we have seen above in section 2.2.4, nominal AICs in the past tense give rise to a strong inference that the proposition expressed by the infinitival clause is true, i.e., that the corresponding event actually took place. This is in contrast to what we find with attributive *too*, where we get the opposite inference.

(86) a. *Middlemarch* was a long book to assign.

INFERENCE: *Middlemarch* was assigned

b. *Middlemarch* was too long a book to assign (it).

INFERENCE: *Middlemarch* was not assigned

The assertion that *Middlemarch* belongs to the category of books that are to be assigned, which is a component of the meaning of the nominal AIC on our analysis, appears to receive empirical support from the data in (86). I leave a more detailed analysis of the past-tense paradigm to future research, but for now I believe that having the infinitival relative modality involved in the main sentence predication does not yield a semantically

incorrect meaning for nominal AICs.

2.5 Summary

In this chapter I have examined nominal AICs from both a descriptive and a theoretical point of view. I have shown that the nominal AIC is a grammatical construction of English with properties that distinguish it from apparently similar sentence types. At the same time, I have proposed a syntactic and semantic analysis that emphasizes the connections between nominal AICs and other known structures. Specifically, I have proposed that nominal AICs are attributive positives with infinitival relative adjuncts; the independent properties of these two clause types combine in a completely natural and compositional way to form nominal AICs. Most importantly, I have shown how the inappropriateness reading that is characteristic of nominal AICs is derived compositionally from the interaction between the modality of the infinitival relative and its role in restricting the domain of the gradable predicate used to compute the standard of comparison. This compositional derivation of what appeared at first to be a semantic idiosyncrasy of the construction—together with the fact that all elements of the syntactic and semantic analyses are independently motivated and not specific to this sentence type—lends strong support to the analysis and the general approach to nominal AICs advanced here.

Chapter 3

The Structure of Clausal AICs

3.1 Overview

Not for nothing did Berman (1974a) introduce the term "hard nut" to refer to the clausal AIC. Inspired by the example *a hard nut to crack*, the name deftly captures the difficulties that this construction presents for syntactic and semantic analysis. Chief among these is the syntactic discontinuity of two elements—the attributive adjective and the infinitival relative clause—that seem quite clearly to form a semantic unit. Further problems include the seemingly close relationship between this sentence type and the *tough* construction (itself notoriously difficult for syntactic analysis) and the relationship between gradability and modality in the semantics of the adjectives that occur in the construction, an issue not discussed in previous studies. In this chapter I present what I believe to be the most comprehensive analysis of this sentence type to date, particularly as regards its semantics. Accordingly, in place of Berman's bleak "hard nut," I adopt the terminologically bland but analytically more optimistic descriptor "clausal AIC."

A basic description of clausal AICs has been given in chapter 1. Here I repeat some of the most important facts that our analysis must capture. First, we must account for the fundamental fact that the attributive adjective in a clausal AIC modifies not the adjacent noun, but the infinitival relative clause that follows the noun. For example, in the clausal AIC *Middlemarch is a bad book to assign*, we understand that it is bad to assign *Middlemarch*, but this does not depend on *Middlemarch* itself being bad in any relevant respect. The modificational disconnect between adjective and noun is seen more clearly in examples like those in (87), where the neighborhood in question is not good, the person not stupid, and the sum not difficult.

(87) a. That is a good neighborhood to avoid.

b. Einstein is a stupid person to make fun of.

c. $2 + 2$ is a difficult sum to miscalculate.

Second, we must have some account of the modality involved in the interpretation of clausal-AIC adjectives. Indeed, I argue that one of the main reasons why clausal AICs are of interest for linguistic theory is that they provide evidence for a modal dimension in the semantics of the adjectives that occur in them. For example, as part of the interpretation of (87a), we understand that in situations or worlds consistent with what is good (desirable, etc.), one avoids the neighborhood in question; similarly for worlds consistent with what is unwise or undesirable in (87b) and worlds consistent with what is unlikely or implausible in (87c). Adjectival modality, however, interacts with the semantic gradability of clausal-AIC adjectives in ways that make a traditional modal analysis difficult to maintain. Consider the contrast between the positive and comparative clausal AICs in (88).

(88) a. *Middlemarch* is a good book to assign.

b. *Middlemarch* is a better book to assign than *Emma* is.

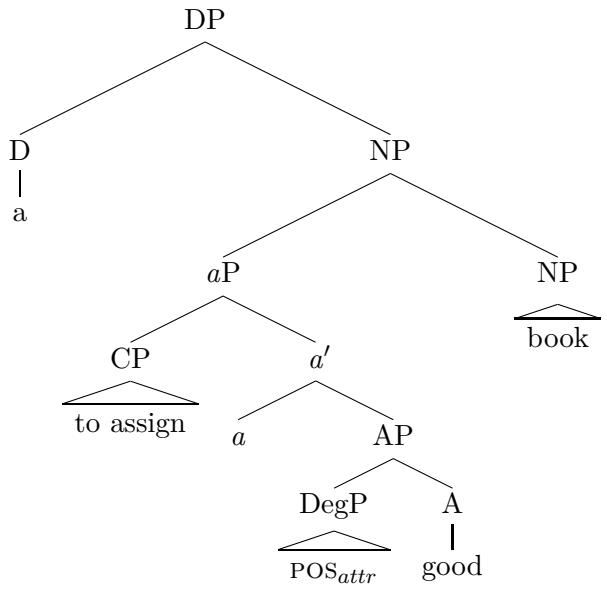
Our intuitions about the modality of (88a) are as described above, namely that in worlds consistent with what is good or desirable, one assigns *Middlemarch*. In (88b), by contrast, it need not be the case that either of the books is assigned in such worlds. This inferential disparity is precisely like the one between ordinary positives and comparatives: in the positive *Middlemarch is a good book*, we understand that *Middlemarch* counts as good according to some relevant standard, while in the comparative *Middlemarch is a better book than Emma is*, neither book need count as good according to such a standard; all that is required is that *Middlemarch*'s degree of goodness (however high or low it may be) exceed *Emma*'s. A traditional account of the modality of *good*, involving universal quantification over a set of accessible worlds, easily captures the positive case in (88a) but has difficulty with the comparative (88b). Note that the same positive-vs.-comparative disparity holds for other modal-adjective sentence types, as well: from the truth of the sentence *It is more likely that Bob will assign Middlemarch than that he will assign Emma*, we cannot infer the truth of the sentence *It is likely that Bob will assign Middlemarch*. The modal–comparative interaction is thus of general interest, and an analysis of it should be of general applicability. One of the major tasks of section 3.4 will be to provide a compositional semantics for clausal-AIC adjectives that accounts for both the modal and the gradable aspects of their meaning, and for the interaction between them.

Third, our modal analysis must capture the fact that, while the infinitival relative clause content is evaluated in worlds specified by an accessibility relation that comes from

the adjective, the noun content is evaluated in the base world of that relation. When we say *Middlemarch is a good book to assign*, we understand that *Middlemarch* is assigned in worlds consistent with what is good; we also, however, understand that *Middlemarch* is a book not just in those worlds, but also in the actual world, which serves as the base of the modal accessibility relation. We cannot felicitously utter the sentence if it is false that *Middlemarch* is actually a book. The same world-of-evaluation relationship holds between the noun and the infinitival relative regardless of what the base world is. If the base is Steve's belief worlds, then we can felicitously say *Steve thinks that Middlemarch is a good play to produce*, provided Steve believes that *Middlemarch* is a play and not a novel. Likewise, the worlds in which *Middlemarch* is produced, according to this sentence, are those consistent not with what is actually good, but with what Steve believes is good. These facts about worlds of evaluation—a more precise characterization of what we intuitively called "modification" above—emphasize the semantic connection between the attributive adjective and the infinitival relative clause, to the exclusion of the noun.

I sketch the basic syntactic structure I propose for clausal AICs in (89). This structure, which will be argued for in detail in section 3.3, highlights the connection between the adjective and the infinitival clause, as they form a constituent (aP) to the exclusion of the noun. I assume that the infinitival relative extraposes to the right edge of DP to reach its surface position.

(89)



A full compositional semantics for this structure will be provided in section 3.4. For now, I offer it both as a preview of the more detailed analysis to come and as a counterpoint to the previous analyses of the construction to be discussed in the next section.

The structure of the chapter is as follows. In section 3.2, I discuss several previous analyses of clausal AICs, pointing out similarities and differences with my own. Section 3.3 contains my syntactic analysis. Clausal-AIC semantics is the topic of section 3.4, where I discuss both gradability and modality in detail and propose a compositional interpretation for the construction that takes both factors into account.

3.2 Previous Analyses of Clausal AICs

Here I consider several previous analyses of clausal AICs that have appeared in the literature, beginning in the early 1970s. Though much more has been written about clausal AICs than about nominal AICs (for which there is virtually nothing), the clausal AIC remains understudied, typically mentioned only as an afterthought by investigators of its

famously difficult cousin, the *tough* construction. What attention linguists have paid to clausal AICs has been concentrated overwhelmingly on their syntactic structure, with very little work considering the semantics in any detail. In what follows I survey the field of earlier proposals, pointing out similarities and, more often, differences with my own.

3.2.1 Berman 1974a

One of the earliest and most thorough investigations of clausal AICs in the generative literature is that of Berman (1974a). Berman's work belongs to the category of generative syntactic literature that sought to ascribe to base generation what earlier generative work had problematically attributed to transformational rules (cf. the approach to clausal complementation developed by Kiparsky and Kiparsky 1970, which countenanced multiple underlying complement types and thereby captured syntactic and semantic generalizations missed by the purely transformational analysis of Rosenbaum 1967). Much of Berman's investigation is focused on using clausal AICs to show that predicative and attributive adjectives cannot be related by transformation (following Bolinger 1967); space is likewise devoted to demonstrating that the infinitival clauses of clausal AICs are not reduced relatives. Despite the depth of insight that characterizes Berman's empirical investigation, she never settles on an underlying structure for the internal syntax of clausal-AIC DPs. It is therefore somewhat difficult to compare her conclusions to my own.

One of Berman's positive claims is that clausal-AIC DPs are actually APs. This is part of a larger claim by Berman about predicative nominals, whose behavioral differences from ordinary referential nominals are, for her, sufficiently great as to warrant a different syntactic category label. Berman bases this proposal about predicative nominals on evidence from

their distribution, their ability to undergo comparison, and the fact that even when human they are correlated not with *who* but with *what* in pseudoclefts. The latter two phenomena are illustrated in (90) and (91).

(90) a. The kitchen is more of a mess than the bathroom is. (Berman 1974a:84)

b. # You can find more of a mess than the bathroom is down that hallway.

(91) a. What Mary is is a competent lawyer. (Berman 1974a:81)

b. # What Mary met at the post office was her friend.

Berman's analysis, however, overstates the distributional case somewhat. As discussed below in section 3.3.1, clausal-AIC DPs are not categorically banned from non-predicative positions. In addition to the examples below in (103), consider those in (92).

(92) a. A good person to talk to is standing right over there.

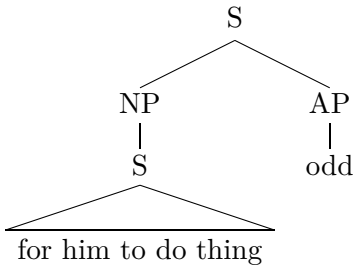
b. Bob asked a tough question to answer.

Though Berman is certainly correct that clausal-AIC DPs are not uniformly acceptable in referential positions, I believe that her analysis of them—and of all predicate nominals—as APs paints them with too broad a brush, as the data in (92) show. Moreover, the AP analysis is ill-motivated from the perspective of phrasal headedness, an element of syntactic theory that had not gained much traction in mainstream generative grammar at the time of Berman's writing.

As for the internal structure of clausal-AIC DPs, Berman proposes that the infinitival clause is an argument of the adjective—a point in common with my analysis of clausal AICs—and that a copy of the adjacent noun is found in the infinitival clause, eventually

being deleted under identity with the matrix noun (see section 3.4.3 for discussion of a similar possibility). Her structure for the adjective and infinitive in the clausal AIC *an odd thing for him to do* is shown in (93) (Berman 1974a:345).

(93)



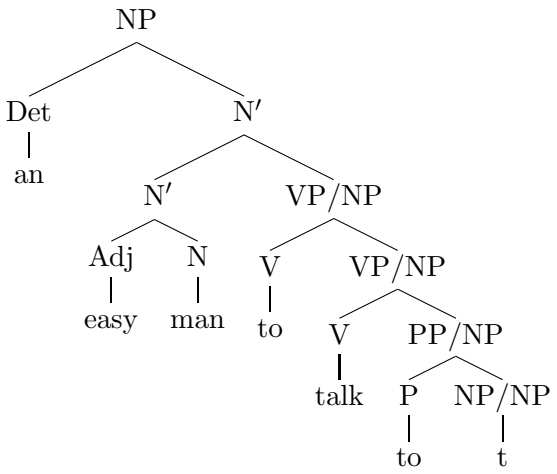
Berman discusses several possibilities for how the structure shown in (93) might fit into a larger structure for the noun phrase (or AP, in her terminology), but she refuses to endorse any of them. She attributes the difficulty in part to the inability of contemporary syntactic theory to help decide the matter, writing that a proper analysis of the construction "will have to wait until the theory develops to a point where *it*, in itself, tells us something about the construction, rather than merely being (at most) a frame on which we can project our intuitions about these constructions" (Berman 1974a:351). Though I do not believe that subsequent theoretical developments have, in themselves, told us anything about clausal AICs, it is certainly true that they have provided us with a greater collection of tools with which to perform the analysis. As we will see below, the syntactic structure I propose for clausal AICs is motivated as much by considerations stemming from the semantic theory I adopt as by purely syntactic criteria.

3.2.2 Flickinger and Nerbonne 1992

Flickinger and Nerbonne (1992) offer a surface-based syntactic account of clausal AICs. Their paper is focused primarily on the *tough* construction and on the evidence it provides

for a hierarchically structured lexicon within HPSG. They propose that the adjectives that occur in the *tough* construction are subcategorized for a VP complement that lacks its own NP complement, i.e., for the SLASH-ed category VP/NP. They then suggest that clausal AICs contain adjectives of this same category. The difficulty, of course, is in providing an appropriately restrictive explanation for how the attributive adjective and its VP/NP complement "wrap" the noun. Flickinger and Nerbonne's (1992:292) proposed structure for the clausal-AIC DP *an easy man to talk to* is shown in (94).

(94)



This syntactic structure has the virtue of being extremely faithful to the surface syntax of the construction, unlike most others; my analysis, for example, relies on extraposition of the infinitival relative to the right edge of DP in order to get the proper surface word order. The problem for a structure like the one in (94) is that this word-order transparency comes at the cost of theoretical complexity in accounting for the relationship between the adjective and the infinitival relative. Specifically, it is impossible to claim that the highest VP/NP constituent in (94) is the complement of the adjective while at the same time maintaining the HPSG principle that the SUBCAT features (i.e., the argument structure) of a phrasal category are projected from its head. In order to be able to combine with the highest

VP/NP, the lower N′ constituent (the one that immediately dominates *easy* and *man*) must inherit the SUBCAT features of the adjective *easy*, an adjunct, in violation of HPSG's most basic structural principle of feature inheritance.

With this problem in mind, Flickinger and Nerbonne (1992:293) propose the Transferable Subcat Principle, which allows SUBCAT features of adjuncts to be transferred up to dominating nodes if they are marked as *transferable*, a property introduced for this purpose. Unfortunately, it is unclear whether this principle has any applicability beyond clausal AICs; Flickinger and Nerbonne (1992:293) write that "the default value for this property must be negative, since in general subcats from adjuncts and specifiers do not pass to heads." The solution thus seems *ad hoc*.

The difficulties involved in proposing an underlying syntactic structure for clausal AICs in which the adjective and infinitive do not form a constituent to the exclusion of the noun—as Flickinger and Nerbonne do—are not limited to the HPSG framework. As discussed below in section 3.3.1, evidence from a wide variety of sources suggests that the adjective and infinitive must form a unit. While this complicates the explanation of the surface word order of clausal AICs, an analysis like that of Flickinger and Nerbonne presents an even greater number of complications for syntactic theory and for the provision of a compositional semantics for the construction. I therefore adopt the syntactic structure for clausal AICs shown above in (89), and not Flickinger and Nerbonne's structure in (94).

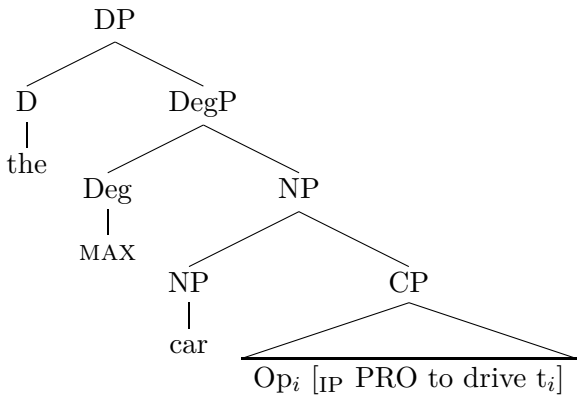
3.2.3 Dubinsky 1998

Dubinsky (1998) presents a general theory of postnominal infinitival clauses, including those found in clausal AICs. His major claim is that postnominal infinitivals are licensed

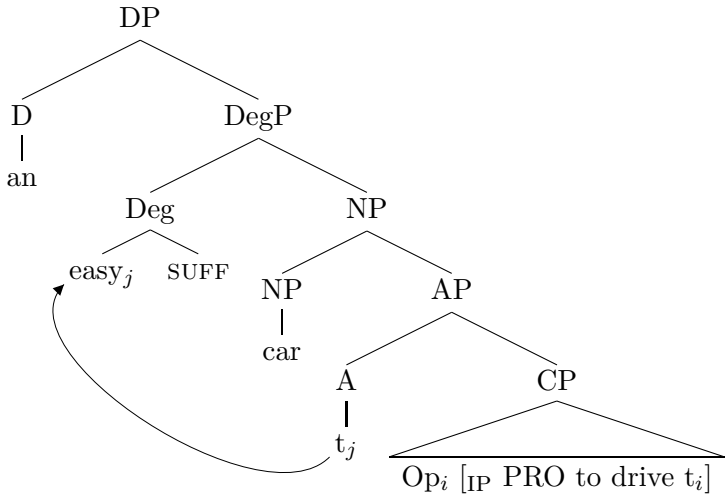
by a DegP projection that is the complement of D^0. On this view, a common structure underlies clausal-AIC DPs like *a good person to hire* and DPs with what appear to be infinitival-relative adjuncts, like *a/the person to hire* (which I dubbed exhortative infinitival relatives above). It is conceivable that the same structure would be claimed to underlie nominal-AIC DPs like *a short person to hire*, though Dubinsky does not discuss such DPs in his paper. Dubinsky's analysis suffers from two serious shortcomings, in my view. First, it posits a general licensing effect of DegP on postnominal infinitival relatives, but goes on to propose different structural positions for the licensed infinitival with respect to Deg^0 in different cases, in one case treating it as an adjunct to NP and in another as a complement of A^0; absent a theory of how the proposed licensing works, it is unexpected to find licensees in such varied structural positions. Second, the analysis relies heavily for its explanation on the semantic effects of DegP, but fails to provide an interpretation for any of the proposed Deg^0 heads.

The structures proposed by Dubinsky for the examples *the car to drive* and *an easy car to drive* are shown in (95); these trees are based on the labeled bracketings he provides in his examples (4), (11), (12), and (22′).

(95) a. DP with infinitival-relative adjunct:



b. Clausal-AIC DP:



A point of contact between Dubinsky's analysis of clausal AICs and my own is the underlying syntactic constituency of the adjective and the infinitival relative clause. For Dubinsky, the infinitival relative is a complement of the adjective, AP is right-adjoined to NP, and the adjective undergoes head movement to Deg^0, where it head-adjoins to the 'sufficient' morpheme, SUFF, as shown in (95b).[1] As we will see below in section 3.3, I propose instead that AP is left-adjoined to NP and that the infinitival relative is in fact an external argument within the adjectival projection. One disadvantage of the implementation proposed by Dubinsky is its use of an AP whose structure "is analogous to a 'tough'-construction" (Dubinsky 1998:110). As noted by McCawley (1998:110) and Huddleston and Pullum (2002:1249) and discussed above in chapter 1, clausal AICs allow a wider range of adjectives than the *tough* construction, meaning that an analysis positing a common underlying structure for the APs of the two constructions has the burden of explaining this

[1]Note that the moved head in (95b) originates in an adjoined XP rather than in one on the "spine" of the sentence, and that it does not move to the closest head, both violations of the Head Movement Constraint of Travis (1984).

disparity.[2] Nonetheless, the basic constituency of clausal-AIC adjectives and infinitives, to the exclusion of the noun, is something that linguists examining the construction have long agreed on (with the notable exception of Flickinger and Nerbonne (1992), discussed above). Dubinsky (1998:110) notes that this element of the analysis dates at least to Wells (1947).

An additional feature shared by Dubinsky's analysis and my own is a syntactic separation of the infinitival relative clause from its apparent head noun. In neither analysis does the clausal-AIC infinitival CP adjoin to the relevant NP (*car* in (95b)), a feature that distinguishes the construction from the one shown in (95a). This in no way prevents one from developing an appropriate compositional semantics for clausal AICs, as will be shown below in section 3.4, though Dubinsky does not provide one in his analysis.

Dubinsky cites as a motivation for his DegP analysis the fact that DPs containing infinitival relatives are preferentially interpreted as denoting types rather than tokens. This interpretive effect is the result, he claims, of the presence of the Deg^0 head, which "prefers type-denoting complements" (Dubinsky 1998:109). It is unclear, however, why the presence of DegP should have this effect; unfortunately, no interpretation is provided for the Deg^0 heads MAX and SUFF shown in (95). Moreover, the licensing effect of DegP is never fully explained: it is unclear whether Dubinsky thinks of it as an instance of syntactic licensing or of semantic licensing. It clearly cannot be a local syntactic dependency, as the licensed infinitival clauses in (95a) and (95b) are in very different positions with respect to Deg^0. The former is adjoined to NP, the complement of Deg^0; the latter is the complement of A^0, inside a projection (AP) that is adjoined to NP. If the licensing effect of Deg^0 is to cover

[2]In fairness, I must acknowledge that I do not present a structural proposal for the ordinary predicative *tough* construction in this dissertation.

both of these cases, then an explanation that appeals to syntactic or semantic scope might be called for, though Dubinsky does not provide one.

Finally, the greatest point of divergence between Dubinsky's analysis and mine concerns the basic role of DegP. For Dubinsky, Deg^0 is the licensor of postnominal infinitival relatives *par excellence*. For me, Deg^0 is, in a sense, the licensor of gradable adjectives. In the semantics of gradability that I assume, gradable adjectives must always compose with a Deg^0 head in order to return a truth value. I assume no general licensing mechanism for infinitival relatives, though a clausal-AIC infinitival clause is licensed, on my analysis, inasmuch as it is an argument of the adjective. Moreover, on my analysis, infinitival relatives like the one in (95a) are not related to clausal-AIC infinitivals like the one in (95b) by any common licensor. This disanalogy is supported, e.g., by the fact that DPs like the one in (95a) are generally barred from referential positions while those like the one in (95b) are not (see the discussion in section 2.3.3 above, as well as the overview of Huddleston and Pullum (2002) below). The type/token interpretive disparity thus does not hold up across all DPs that contain infinitival relatives, a fact that casts doubt on its usefulness in motivating the syntactic analysis.

3.2.4 Huddleston and Pullum 2002

Huddleston and Pullum (2002) present a thorough descriptive overview of clausal AICs, focusing on their relationship to other sentence types that contain infinitival relatives ("hollow *to*-infinitivals" in their terminology). These include the *tough* construction, sentences with *too* licensing a result infinitival, and sentences with infinitival-relative adjuncts. Though they do not present a detailed syntactic analysis of clausal AICs, they

recognize that the basic syntactic dependency is between the attributive adjective and the infinitival relative, writing that clausal-AIC infinitival clauses must be treated "as indirect complements in the structure of the NP: they are licensed not by the head of the construction, the noun, but by a dependent on it, the attributive adjective" (Huddleston and Pullum 2002:1249). They likewise make note of the fact that clausal AICs permit a wider range of adjectives than the (predicative) *tough* construction; we are left to infer that it is doubtful that either of these constructions can be syntactically derived from the other. (A similar conclusion is reached by McCawley (1998:110), who chooses to "take no stand" on the relationship between the two.)

One of Huddleston and Pullum's most important observations about clausal AICs concerns their distribution. As will be discussed in section 3.3.1 below, clausal-AIC DPs are not uniformly restricted to predicative positions, as nominal-AIC DPs are. They may sometimes occur in referential positions, though judgments of acceptability vary with different clausal-AIC DPs. Huddleston and Pullum (2002:1249) offer the examples in (96) (judgments original).

(96) a. * They are charging us a difficult price to better.

b. She is married to a rather difficult guy to get on with.

Huddleston and Pullum contend that clausal-AIC DPs are more acceptable in referential positions when the attributive adjective may be understood to modify not just the infinitival relative, but also the adjacent noun. In (96a), the DP *a difficult price to better* refers to a price that is not itself difficult; presumably, the price in question is relatively low and reasonable. In (96b), by contrast, the DP *a difficult guy to get on with* refers to a guy

who could himself be described as difficult. The secondary applicability of the adjective's modificational force to the noun seems to be a good predictor of clausal-AIC DP acceptability in referential positions. To Huddleston and Pullum's examples, I add the acceptable ones from (92) above, repeated here in (97) alongside two minimally different unacceptable examples.

(97) a. A good person to talk to is standing over there.

b. Bob asked a tough question to answer.

c. # A good person to despise is standing over there.

d. # Bob asked a tough question to get wrong.

In (97a), it seems that the person in question may be characterized as good in general, while this is certainly not the case in (97c). In (97b), the question Bob asks is almost certainly a tough one, while the opposite is true in (97d). The judgments of acceptability conform to Huddleston and Pullum's generalization. Huddleston and Pullum do not offer an explanation for why the distribution of clausal-AIC DPs should be restricted in this way, and I also am at a loss to explain it. Nonetheless, their generalization will be of help in discussing clausal-AIC DP distribution in the remainder of the chapter.

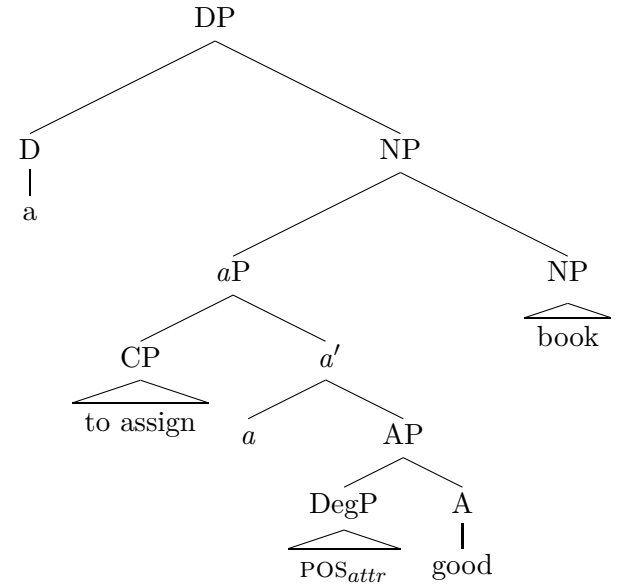
3.3 Syntactic Structure

In this section I present my analysis of the syntax of clausal AICs. The major task here—and indeed, the primary syntactic difficulty presented by the construction—is to establish the merge position of the infinitival relative clause. Several factors, some syntactic

and some semantic, suggest strongly that the infinitival relative is not simply adjoined to NP as it is in nominal AICs. Rather, this clause is an argument of the attributive adjective that undergoes rightward extraposition to reach its surface position. In most other respects, the syntax of clausal AICs is like that of nominal AICs, as both are attributive gradable adjective constructions.

I repeat my proposed structure for clausal AICs from (89) above in (98).

(98)



The chief difference between the structure in (98) and the attributive positive structure proposed in chapter 2 for nominal AICs, aside from the position of the infinitival relative, is the exploded AP projection, which now contains a "little *a*" shell (Bennis 2000, 2004).[3] Of primary importance for us is the position of the infinitival CP within this exploded adjectival projection: the CP is not the complement of A^0, but rather the specifier of *a*P. As we will see, this is a crucial distinction that helps to explain the different behavior and acceptability of infinitival relatives with different adjectives in clausal AICs. As with

[3]Though not shown in the tree in (98), it is possible that there is head movement of A^0 to a^0; analogous head movement is often proposed for *v*P. As such movement is of little importance for the analysis of clausal AICs, I will not consider it further here.

nominal AICs above, I assume that DegP sits in SpecAP. More precisely, as discussed in chapter 2, DegP is merged within AP but is not an argument of A^0; in a bare phrase structure system where complement and specifier are defined simply as the first and second XPs, respectively, to merge within a projection, this distinguishes the DegP in (98) from a first-merged XP for which A^0 is subcategorized (e.g., a PP or CP that would traditionally be described as a complement of the adjective). (See footnote 6 on page 41 for additional discussion.)

In the following subsections I present arguments in favor of the structure shown in (98), in preparation for providing a compositional semantics to interpret the structure in section 3.4.

3.3.1 Against Adjunction to NP

To begin, I examine the evidence against treating the infinitival relatives of clausal AICs as we treated those of nominal AICs, i.e., as adjuncts to NP. The arguments against such an analysis are both syntactic and semantic in nature. First, I repeat the observation from chapter 1 about the grammaticality of impersonal paraphrases of the two classes of AIC. Whereas nominal-AIC adjectives do not allow such paraphrases,[4] clausal-AIC adjectives permit them without exception. The contrast is shown in (99) and (100).

(99) a. *Middlemarch* is a long book to assign.

[4]More precisely, adjectives that occur in nominal AICs need not be subcategorized for infinitival-clause arguments. Those that optionally take infinitival-clause arguments, like *crafty*, invariably take on a clausal-AIC–like interpretation in the impersonal paraphrase, as this paraphrase depends on there being an infinitival argument. For example, the AIC *Bob is a crafty person to hire*, which has both nominal and clausal readings, retains only the clausal-AIC interpretation in the impersonal *It is crafty to hire Bob.*

b. # It is long to assign *Middlemarch*.

(100) a. *Middlemarch* is a bad book to assign.

b. It is bad to assign *Middlemarch*.

The data in (99) and (100) suggest that the attributive adjective and the infinitival relative behave as a unit in clausal AICs; this is different from their behavior in nominal AICs. As we saw above in (87), it is easy to construct clausal-AIC examples which make it clear that the adjective modifies the infinitival relative clause and not the adjacent noun. These facts present difficulties for an NP-adjunction analysis of the infinitival relative CP in clausal AICs. If the infinitival CP were adjoined to NP, then it would form a syntactic constituent with NP to the exclusion of the adjective. As we see here, however, the CP appears to form a unit with the adjective to the exclusion of the noun.

Alongside this largely intuitive statement of the issue, we may observe that the NP-adjunction analysis faces a serious formal difficulty, as well. The problem concerns the modality of the attributive adjective. As discussed above, the adjective's modality specifies only those worlds in which the infinitival-clause content is evaluated; the NP content is evaluated in the base world of the modal accessibility relation. For example, if we say *Middlemarch is a good book to assign*, then we understand that while *Middlemarch* gets assigned in worlds consistent with what is good or desirable, *Middlemarch* must be a book in the actual world. In order to account for this fact in a compositional way, the attributive adjective must be able to distinguish between the infinitival CP and the NP when it composes with them, so that the modal accessibility relation it introduces applies only to the CP. If the CP is adjoined to NP, however, then they form a syntactic unit that composes

semantically with the adjective as a single argument. Basic principles of compositionality ensure that the adjective is unable to "see inside" the structure of its arguments, and so there is no way for the adjective's modality to apply to the CP without also applying to the NP in such a situation. An NP-adjunction analysis thus makes it impossible to account properly for modality in clausal AICs.

A further problem with an NP-adjunction analysis of clausal AICs is that it makes an incorrect prediction about the role of the infinitival relative in computing the standard of comparison in positives. As we saw with nominal AICs in chapter 2, the full NP, including the adjoined infinitival relative CP, is used to restrict the domain of the input to **s**, the standard-identification function used to compute the standard of comparison for positives. In the nominal AIC *Middlemarch is a long book to assign*, the syntactically complex NP *book to assign* is the domain restrictor; the result is a standard of length for books that one ought to assign, that are typically assigned, etc.

Consider now the minimally different clausal AIC *Middlemarch is a bad book to assign*. Here too there is a gradable adjective, *bad*, in the positive degree, and there is a standard of comparison computed by **s**. The role of the infinitival relative, however, is to tell us what kind of badness we are talking about, not to restrict the domain of things from which we compute the standard of badness. Put differently, in the clausal AIC we have a standard of bad-to-assign–ness for books, not a standard of badness for books that one ought to assign or that are typically assigned. In our nominal AIC, by contrast, we have a standard of length as described above, not a standard of long-to-assign–ness for books. The gradable property in clausal AICs is determined by the adjective and the infinitival relative

in combination—bad-to-assign–ness is a gradable property different from, e.g., bad-to-read–ness—while in nominal AICs a given adjective is always associated with the same gradable property (length, in the example above).[5] To convince ourselves that this is the proper characterization of the infinitival relative's semantic contribution in each construction, we may consider the preservation of inferences across sentences that contain different infinitival relatives. First, consider the comparative clausal AICs in (101).

(101) *Middlemarch* is a worse book to assign than *Emma* is.

$\nleftrightarrow$ *Middlemarch* is a worse book to read than *Emma* is.

In (101), which contains two clausal AICs with different infinitival relatives, neither sentence entails the other. We can easily make sense of this based on the discussion above: in the first sentence, we are dealing with the gradable property of bad-to-assign–ness, while in the second sentence we are dealing with bad-to-read–ness. The fact that *Middlemarch* outranks *Emma* on the former scale lets us infer nothing about their relative ranking on the latter. Note crucially that if the infinitival relative were adjoined to NP in clausal AICs, then in both sentences of (101) we would be dealing simply with the gradable property of badness. The infinitival relative CP would compose directly with the NP *book*; due to its syntactic position, the CP would not compose directly with the adjective, and so we would be dealing simply with badness, and not with bad-to-assign–ness or bad-to-read–ness. If this were the case, however, then the biconditional in (101) would have to be true, instead of false in both directions as it actually is: if *Middlemarch*'s badness exceeds *Emma*'s, then it must do so no matter what is adjoined to the noun *book*, i.e., no matter how we choose

[5]This will be formalized somewhat differently below, but the terminology is descriptively useful in the meantime.

to describe those two entities.

Next, consider the nominal AICs in (102):[6]

(102) *Context: Middlemarch is longer than Emma.*

a. *Emma* is a long book to assign. → *Middlemarch* is a long book to assign.

b. *Emma* is a long book to read. → *Middlemarch* is a long book to read.

In (102) we see that, in a context where *Middlemarch* is longer than *Emma*, any nominal AIC based on the adjective *long* will be true of *Middlemarch* provided it is true of *Emma*. This result is just as we predict based on the discussion above: no matter what infinitival relative is used in a nominal AIC, the gradable property for a given adjective will always be the same. As we are dealing in all cases with the gradable property of length, we draw our conclusions via simple transitive reasoning: if *Emma* is longer than the relevant standard and *Middlemarch* is longer than *Emma*, then *Middlemarch* is longer than the relevant standard. Note that the difference between (101) and (102) is tied to structure, and not to lexical semantics. We can easily construct nominal AICs based on the adjective *bad* that behave exactly like the ones in (102): if we agree independently that *Middlemarch* is a worse book than *Emma* and if both are on Bob's top-ten list, then *Emma is a bad book to have made Bob's top-ten list → Middlemarch is a bad book to have made Bob's top-ten list*. Here again, we are dealing simply with a single scale, the scale of badness. If the infinitival relative altered the gradable property in nominal AICs as it does in clausal AICs, then we would fail to predict the validity of this inference and of those in (102).

[6]Note that, due to the independent unavailability of the nominal-AIC inappropriateness reading in comparatives, the examples in (102) are constructed somewhat differently from those in (101). See section 1.3 for discussion.

The upshot of this discussion is that, as we have seen above, the infinitival relative of a clausal AIC forms a unit not with the NP, as in nominal AICs, but with the attributive adjective. I will have much more to say about the relationship between the infinitival relative and standards of comparison in section 3.4.

Finally, clausal-AIC DPs fail to show the restricted distribution that we would expect of them if their infinitival clauses were adjoined to NP. As noted above in section 2.3.3, DPs that contain infinitival relative adjuncts are generally unacceptable outside of predicative positions, whether they contain an attributive adjective (as in nominal AICs) or not. If clausal-AIC infinitival relatives are adjoined to NP, then the DPs that contain them should be barred from referential positions just like those of nominal AICs. As the examples in (103) show, however, clausal-AIC DPs are often acceptable in referential positions.[7]

(103) a. You always go to fun places to visit. (overheard in Los Angeles, Sept. 9, 2006)

b. Fortunately, he threw a good pitch to hit. (—Pat Burrell, Phillies left fielder, May 2, 2008)[8]

c. In fact, most good places to eat are open year round. (via Google, Sept. 12, 2006)[9]

[7]Berman (1974a:61) claims that DPs of this type are entirely restricted to predicative positions, citing examples like *#Mary works for a hard man to get along with* and *#A pleasant girl to talk to came to see me yesterday.* Huddleston and Pullum (2002) offer an explanation for why certain clausal-AIC DPs are more acceptable in referential positions than others, as discussed above in section 3.2.4. While Berman's example of *a pleasant girl to talk to* appears to violate Huddleston and Pullum's generalization—presumably, the girl in question could be described as pleasant, and the clausal-AIC DP should therefore be fine in referential position—I actually find this example acceptable, contrary to Berman's judgment. For me, at least, Huddleston and Pullum's proposal makes the correct prediction here.

[8]Source: http://www.philly.com/philly/sports/20080503_Burrell_s_blast_bails_out_the_Phils___bullpen.html

[9]Source: http://forum.maryland.com/showthread.php?s=bbc06e3453fc7c4ee9c2a94d2452fe4c&p=20263

The acceptability of clausal-AIC DPs in referential positions, as shown in (103) and in (92) above, marks an important difference between them and their nominal-AIC counterparts. If it is correct that the restricted distribution of nominal-AIC DPs is a result of their containing infinitival relative adjuncts to NP, as was argued in section 2.3.3, then the failure of clausal-AIC DPs to observe the same restriction suggests that they do not share this structural characteristic. The distributional facts, alongside the other evidence discussed in this section, thus argue against an NP-adjunction analysis of clausal-AIC infinitival relatives.

3.3.2 Not the Complement of A^0

Having shown that clausal-AIC infinitival relatives are not adjuncts to NP, and that they seem quite clearly to form a semantic unit with the attributive adjective, we will naturally pursue an analysis in which they merge somewhere within the adjectival projection. In this section I show that they cannot merge as complements of A^0, but instead must originate elsewhere within the adjectival projection.

The facts discussed in the previous section suggest strongly that the attributive adjective and the infinitival relative form a unit in clausal AICs. More specifically, it seems that the infinitival relative is an argument of the adjective, as evidenced by the availability of impersonal paraphrases in which the infinitival clause clearly behaves as an argument of the adjective and by the way in which the gradable property expressed by the adjective is modified according to the content of the infinitival clause (i.e., the issue of badness vs. bad-to-assign–ness discussed above). Its status as an argument raises the question of how the adjective selects for it, i.e., of how one states a syntactic relationship that calls for an

XP to have a particular internal structure. I suggest that the relationship be stated with reference to both the category and the type of the argument: its syntactic category must be CP; its type must be $\langle s, et \rangle$. Together, these two requirements ensure that the CP argument will be a relative clause.[10] If the infinitival relative clause is an argument of the attributive adjective in clausal AICs, then we must ask what type of argument it is, i.e., where it merges in the adjectival projection.

It is clear that the infinitival relative cannot be analyzed as a complement of the adjective. There are two principal reasons for this, one syntactic and one semantic/thematic. First, it is a well-known feature of English syntax that prenominal adjectives are barred from taking complements: their complements cannot occur in between the adjective and the noun, nor can they be extraposed from this position.[11] Second, the infinitival-clause arguments of clausal-AIC adjectives are thematically and behaviorally distinct from those of *eager*-class adjectives, and all available evidence suggests that infinitival arguments of *eager*-class adjectives are complements of A^0. I now examine each of these points in turn.

Among the syntactic differences between predicative and attributive adjectives in English is the ability of the former, but not the latter, to take complements. It is common for predicative adjectives to take PP complements headed by various prepositions, as shown

[10] I readily acknowledge that there may be better ways to capture this selectional relationship, and note that the proposal outlined above leads to massive overgeneration if applied *ad libitum*; for example, we probably do not want our theory to countenance selection for PPs of type $\langle et, \langle et, t \rangle \rangle$. Two further notes: (i) Selectional requirements of the CP-internal lexical items will ensure that we do not generate syntactically undesirable CPs of type $\langle s, et \rangle$, e.g., non-relative clauses in which arguments simply go missing. (ii) I have no proposal for how to state the syntactic fact that the relative-clause argument must be infinitival. It will not do simply to state it as a property of the adjectives involved, as many clausal-AIC adjectives, like *good*, happily take both finite and non-finite clausal arguments: *It is good that Bob left early.* I leave this issue for future research.

[11] Complements are permitted in postnominal APs, as in the subject DP of the following sentence: *People fond of the New England coast will enjoy Bob's book.* Such DPs are structurally quite distinct from clausal-AIC DPs and will not be considered further here.

in (104). The examples in (105), however, show that these same adjectives cannot occur with their complements in attributive position. Nothing is permitted to intercede between an attributive adjective and the following noun in English. This prohibition extends even to traces, as demonstrated by the examples in (106), in which the complements of the attributive adjectives from (105) have been extraposed from the offending position, but to no grammatical avail.

(104) a. Bob is fond of the New England coast.

b. Susan is excited about what she just heard.

c. This book is replete with interesting observations.

(105) a. * Bob is a fond of the New England coast person.

b. * Susan is an excited about what she just heard investor.

c. * This is a replete with interesting observations book.

(106) a. * Bob is a fond person of the New England coast.

b. * Susan is an excited investor about what she just heard.

c. * This is a replete book with interesting observations.

The last set of data, in (106), is of greatest interest for us. It is clear from the surface syntax of clausal AICs that if the infinitival relative clause originates inside the adjectival projection—as it appears that it must—then it must undergo extraposition to reach its surface position. Extraposition is barred, however, from the complement position of A^0, as the examples in (106) show. This is true even if such extraposition causes the adjective and noun to be immediately adjacent on the surface. It follows that clausal-AIC infiniti-

val relatives, which must be extraposed from within the adjectival projection, cannot be complements of A^0.

The conclusion that clausal-AIC infinitival relatives are not complements of A^0 is further supported by their thematic and behavioral differences from true infinitival complements of adjectives. It is well known that adjectives such as *eager* and *ready* select infinitival complements, and that the resulting adjective–infinitival-clause constituent may be predicated of a subject, as in (107). These infinitival complements follow exactly the pattern seen above for PP complements of adjectives: they are barred from attributive position, as shown in (108), and, most importantly for us, they are unable to undergo extraposition from their base position in attributive constructions, as shown in (109) (an observation that dates at least to Berman 1974a:22).

(107) a. Bob is eager to go sailing.

b. Susan is ready to take a nap.

(108) a. * Bob is an eager to go sailing guy.

b. * Susan is a ready to take a nap woman.

(109) a. * Bob is an eager guy to go sailing.

b. * Susan is a ready woman to take a nap.

The examples in (109) are important for the syntactic analysis of clausal AICs. They show that not just any syntactic relationship is permitted to exist between an attributive adjective and an infinitival clause that follows the adjacent noun. In addition, they confirm that extraposition of infinitival arguments from within the attributive adjectival projection obeys known restrictions on such extraposition. (Note that the infinitival clauses in (109)

cannot initially merge as adjuncts to NP, as they are not relative clauses.) For these reasons, it is clear that clausal-AIC infinitival relatives, which undergo extraposition to reach their surface position, must originate not as complements of A^0, but somewhere else within the adjectival projection.

I propose that clausal-AIC infinitival clauses originate in Spec*a*P, as shown above in the tree in (98). This is consistent with their semantic/thematic status with respect to the adjective: whereas with *eager*-class adjectives the infinitival clause and the adjective together form a property[12] that is predicated of some subject, as in (107) above, with clausal-AIC adjectives the property denoted by the adjective is predicated of the infinitival clause itself. This is seen in the impersonal paraphrases discussed earlier, where the infinitival clause may serve as the syntactic subject of the sentence or be extraposed and replaced by an expletive. As shown in the contrast between (110) and (111), infinitival arguments of *eager*-class adjectives do not behave in this way.

(110) a. To assign that book is good.

b. It is good to assign that book.

(111) a. * To assign that book is eager.

b. * It is eager to assign that book.

There is thus ample evidence, both from the extraposition data discussed above and from the contrast between (110) and (111), that clausal-AIC infinitival clauses occupy an argument position other than complement of A^0 within the adjectival projection, a position I have identified as Spec*a*P. The "little *a*" shell structure is borrowed from Bennis (2000,

[12]More specifically, they form a gradable property, which I treat as a measure function of type $\langle e, d \rangle$, following Kennedy (1999).

2004), who uses it to analyze thematic differences among adjectival arguments in English and Dutch. As we have seen above, the infinitival argument of a clausal-AIC adjective behaves like an external argument within the adjectival projection, serving as the subject of adjectival predication. Indeed, the internal structure of *a*P proposed above in (98) is consistent with the structure one might propose for the predicative variant of the adjective. The key feature in each case is that the infinitival clause merges as the external argument of the adjective, in the outermost specifier position of the adjectival projection.[13] Of course, in the attributive variant seen in clausal AICs, the adjective's external argument is an unsaturated infinitival relative clause whose open position is eventually bound by the matrix subject, rather than a fully saturated infinitival clause as in the predicative variant. This is consistent with the external syntax of the adjectival projection: due to its attributive position, it must eventually compose with a higher external argument, namely the matrix subject.

With the structural position of the infinitival clause established according to the syntactic and semantic criteria discussed in this and the previous subsection, we are ready to move on and provide an interpretation for the proposed structure.

[13]Unfortunately, there are few, if any, purely syntactic diagnostics that can reliably distinguish among the various imaginable structures for AP/*a*P in clausal AICs. With some minor amendments to the semantics proposed in section 3.4, one could swap the specifier positions of the infinitival relative and DegP, for example. With similarly small adjustments, we could drop the *a* shell altogether and have DegP serve as an extended projection of the adjective, as proposed by Kennedy and Merchant (2000) for attributive comparatives. As I am not convinced that anything crucial hinges on the choice, I will stick with the structure in (98) for my implementation.

3.3.3 A Note on Idioms

The astute reader will have noticed that the syntactic structure proposed for clausal AICs in (98) is incompatible with the raising analysis of relative clauses, discussed in chapter 2. On the face of it, this appears to be a problem for clausal AICs constructed from idioms, which are indeed acceptable, as shown in (112).

(112) a. That is reasonable headway to make in one day.

b. That is good advantage for him to take of the situation.

The problem, as discussed above in section 2.3.1, is that the heads of the relative clauses in (112) are idiom chunks, and as such they must originate within the infinitival VP or else lose their idiomatic interpretation. Our proposed syntax for clausal AICs, however, has the infinitival relative merging in Spec$a$P, a position to which the NP head of the relative clause cannot be related by any licit movement operation. Absent a syntactic configuration that makes a raising analysis of the infinitival relative clause possible, it seems that our proposal for clausal AICs encounters serious difficulty with idioms.

I suggest that this is a pseudo-problem. The real problem, I believe, is not with the syntactic structure proposed in (98), but instead with the idiosyncratic semantics of idioms in clausal AICs. The interpretation of idioms that occur in clausal AICs is in fact far different from what we would expect from the structure in (98). Specifically, the idioms shown in (112) have an "amount" reading that is quite unlike the interpretation of ordinary clausal AICs. In (112a), for example, what is asserted is not that it is reasonable to make headway in one day, but rather that the amount of headway made is a reasonable amount to make in one day. Carlson (1977) identifies a distinct class of relative clauses—

"amount relatives"—that have this reading. Grosu and Landman (1998) show that such relatives involve a maximalization operation, and this seems intuitively correct for clausal-AIC idioms: in (112a), we are concerned with the maximal amount of headway made. I will not pursue an analysis of this reading in clausal AICs here, but I note that Grosu and Landman, like Carlson, adopt a raising syntax for the relative clauses in question.[14] What is important for our purposes is that no such amount reading is found in ordinary clausal AICs like *Middlemarch is a good book to assign*: this sentence does not mean that the (maximal) amount of books assigned is a good or reasonable amount to assign. It is therefore far from clear that we should want to assign a common syntactic structure to ordinary clausal AICs and to those constructed from idioms.

While I have no specific proposal to offer for the analysis of clausal AICs that contain idioms, I hope to have shown that their interpretation is sufficiently different from that of ordinary clausal AICs as to render the raising issue moot. I will not discuss idioms further in this chapter, and will keep the syntactic structure for clausal AICs shown in (98) as I move on to discuss the semantics of the construction.

3.4 Clausal-AIC Semantics: Gradability and Modality

Here I present my analysis of the semantics of clausal AICs. Clausal AICs are gradable attributive adjective constructions much like nominal AICs, and much of the semantic apparatus developed in chapter 2 can be applied directly to the analysis of clausal AICs, as

[14] A complicating factor for the analysis of clausal-AIC idioms is Carlson's (1977:539) observation that amount relatives cannot be infinitival. It would seem, then, that we cannot simply adopt an amount-relative analysis for clausal-AIC idioms. Any future analysis of the data considered here must offer an explanation for this discrepancy in the acceptability of infinitival relatives.

discussed below in section 3.4.1. The two constructions part ways, however, not only in the order of composition of their elements, but also with respect to the lexical semantics of the adjectives that occur in them. Specifically, the modality of clausal-AIC adjectives forces us to add another layer to the analysis. Section 3.4.2 is devoted to developing a mapping between the degree-based semantics familiar from chapter 2 and the modal semantics required for clausal AICs. An additional aspect of clausal-AIC meaning is addressed briefly in section 3.4.3. At every stage, my goal is to present an empirically accurate and fully compositional semantic analysis of the construction.

3.4.1 A Degree-Based Semantics for Clausal AICs

The basic semantics for clausal AICs that I propose in this section follows quite closely the gradable semantics for attributive positives developed above in section 2.4.2.1. As clausal AICs may occur not just in the positive but also in the comparative degree, I will include an analysis of comparative clausal AICs below. The gradable semantics proposed here differs from that of chapter 2 primarily in its full intensionality (in anticipation of the modality introduced in the next section) and in its treatment of gradable predicates that take propositional, as opposed to individual-type, arguments. In most other respects, the chapter 2 analysis is maintained without significant alteration here.

I begin with the adjectives. As before, I adopt a measure function analysis of gradable adjectives, according to which the adjective takes an argument and returns a degree, which in turn serves as an argument of the Deg^0 head (POS_{attr} or other). Whereas the gradable adjectives of nominal AICs take individual-type arguments and are thus of type $\langle e, d\rangle$, those of clausal AICs take propositional arguments. The basic type of a gradable adjective that

takes a propositional argument is $\langle s, \langle st, d\rangle\rangle$.[15] For example, the gradable adjective *good* denotes, for a given world, the degree of goodness associated in that world with a given proposition. (Bear in mind that this notion will be revised considerably in the next section.)

Clausal-AIC adjectives, of course, do not combine directly with fully saturated propositions; rather, they combine with infinitival relative clauses. We therefore must make a small modification to the basic semantic type of propositional-argument–taking gradable adjectives for our analysis of clausal AICs. The propositional argument of the adjective will be built up piecemeal, with the infinitival relative and an individual-type argument (to be bound eventually by the matrix subject) composing separately with the adjective to form its propositional argument. As a result, the adjective is of type $\langle s, \langle\langle s, et\rangle, ed\rangle\rangle$.[16] For now, I will assume the rather impoverished lexical entry for the adjective *good* shown in (113), saving for section 3.4.2 a more complete analysis of its semantics.

(113) a. $[\![good]\!] = \lambda w_s \lambda P_{\langle s,et\rangle} \lambda x_e . \mathbf{good}(w)(P)(x)$

b. $\mathbf{good}(w)(P)(x)$ = the degree of goodness associated in world w with the proposition $\lambda w'.P(w')(x)$.

With the lexical entry for the adjective established as in (113), we are ready to examine

[15] In the lexical entries here and below, world arguments are treated as the innermost arguments of those functors that take them. I do not wish to suggest that anything crucial hinges on the order-of-composition choice; as specified in the appendix, I assume a single domain of individuals for all possible worlds, rather than separate domains for each world, and so in our model we should be able to curry the relevant functions however we like, in principle. I treat worlds as full-fledged arguments and not, e.g., as evaluation indices because this is useful for the exposition below, where it will be important to keep track of the world arguments of the different propositional subparts of complex expressions.

[16] Notice that the relationship between this higher type and the more basic type proposed in the previous paragraph is, modulo intensionality, essentially the relationship familiar from the Geach Rule of categorial grammar (Geach 1970), which states that for any expression of type c, an expression of type $\langle a, b\rangle$ is equivalent to an expression of type $\langle\langle c, a\rangle, \langle c, b\rangle\rangle$ (for a fuller exposition, see, e.g., Carpenter 1997:158). In our case, it is an expression of type e that is withdrawn: $\langle s, \langle st, d\rangle\rangle \Rightarrow \langle s, \langle\langle s, \mathbf{e}t\rangle, \mathbf{e}d\rangle\rangle$.

the composition of *a*P. In what follows, I will use the clausal AIC *Middlemarch is a good book to assign* as the example for composition. As shown in the tree above in (98), the internal composition of *a*P begins with the composition of POS_{attr} and the adjective, which together form the AP node. This constituent composes with a^0, which I treat simply as an identity function on its argument and thus ignore in the derivations shown here (see the appendix for a full derivation). The infinitival relative is the next argument; the resulting *a*P then composes with the adjacent NP and finally with the matrix subject. The lexical entry that I propose for the Deg^0 head is nearly identical, modulo intensionality, to the lexical entry for the extensional POS_{attr} proposed above in (79a) in chapter 2. The major structural difference with our new intensional POS_{attr} for clausal AICs, which I call $\text{POS}^{claus}_{attr}$, is that there is an additional argument, representing the infinitival relative clause. This is due to the presence of the external argument in the adjectival projection of clausal AICs, an argument that is absent from the adjectival projection of nominal AICs.[17] The lexical entry for $\text{POS}^{claus}_{attr}$ is shown in (114).

(114) $[\![\text{POS}^{claus}_{attr}]\!] = \lambda w_s \lambda G_{\langle s,\langle\langle s,et\rangle,ed\rangle\rangle} \lambda P_{\langle s,et\rangle} \lambda N_{\langle s,et\rangle} \lambda x_e . G(w)(P)(x) >! \mathbf{s}(\lambda y_e : N(w)(y).G(w)(P)(y)) \wedge N(w)(x)$

Our intensional $\text{POS}^{claus}_{attr}$ in (114) has all the same meaning components as the extensional POS_{attr} discussed in chapter 2. It conjoins a 'significantly exceeds' comparison relation whose standard of comparison is computed using the standard-identification function **s** (with its domain restricted by the matrix NP denotation) with a basic nominal predication.

[17] Note that, though $\text{POS}^{claus}_{attr}$ is of a higher type than our nominal-AIC POS_{attr} from chapter 2, the two are related by the quasi-Geach Rule (i.e., one that ignores world arguments) discussed above in footnote 16. In this case, it is an argument of type $\langle s, et\rangle$ that is withdrawn: $\langle ed, \langle et, et\rangle\rangle \Rightarrow \langle s, \langle\langle s, \langle\langle \mathbf{s,et}\rangle, ed\rangle\rangle, \langle\langle \mathbf{s,et}\rangle, \langle\langle s, et\rangle, et\rangle\rangle\rangle\rangle$.

In our example, *Middlemarch is a good book to assign*, the arguments of $\textsc{pos}^{claus}_{attr}$ corresponding to those shown in (114) are as follows: w is the actual world, which I abbreviate @; G is *good*; P is the infinitival relative *to assign*; N is *book*; and x is the subject, *Middlemarch*. With the interpretation given in (113) for the adjective *good*, the sentence thus states that *Middlemarch*'s degree of good-to-assign–ness significantly exceeds the standard of good-to-assign–ness for books and that *Middlemarch* is a book.

The entire composition is shown in (115), with arguments added one at a time for the sake of legibility. Truth conditions are given in (116). I assume the lexical entries for $\textsc{pos}^{claus}_{attr}$ and for *good* shown in (114) and (113a), respectively; the infinitival relative is interpreted as $\lambda w \lambda x.\mathbf{assign}(w)(x)(\mathbf{a})$, with $\mathbf{a}$ a constant of type e representing the arbitrary PRO subject of the infinitival clause; the NP *book* has the lexical entry $\lambda w \lambda x.\mathbf{book}(w)(x)$; the matrix subject *Middlemarch* is represented as the constant $\mathbf{m}$ of type e. (Note that each individual step below shows the combined effects of functional application and any subsequent lambda reduction.)

(115) $[\![\textsc{pos}^{claus}_{attr}]\!]([\![@]\!])([\![good]\!])([\![to\ assign]\!])([\![book]\!])([\![Middlemarch]\!])$

a. First argument:

$[\lambda w_s \lambda G_{\langle s,\langle\langle s,et\rangle,ed\rangle\rangle} \lambda P_{\langle s,et\rangle} \lambda N_{\langle s,et\rangle} \lambda x_e.G(w)(P)(x) >! \mathbf{s}(\lambda y_e :$

$N(w)(y).G(w)(P)(y)) \wedge N(w)(x)](@) =$

$\lambda G_{\langle s,\langle\langle s,et\rangle,ed\rangle\rangle} \lambda P_{\langle s,et\rangle} \lambda N_{\langle s,et\rangle} \lambda x_e.G(@)(P)(x) >! \mathbf{s}(\lambda y_e : N(@)(y).G(@)(P)(y)) \wedge$

$N(@)(x)$

b. Second argument:

$[(115a)](\lambda w_s \lambda P_{\langle s,et\rangle} \lambda x_e.\mathbf{good}(w)(P)(x)) =$

$\lambda P_{\langle s,et\rangle}\lambda N_{\langle s,et\rangle}\lambda x_e.\mathbf{good}(@)(P)(x) >!\ \mathbf{s}(\lambda y_e : N(@)(y).\mathbf{good}(@)(P)(y)) \wedge$

$N(@)(x)$

c. Third argument:

$[(115b)](\lambda w'_s\lambda y'_e.\mathbf{assign}(w')(y')(\mathbf{a})) =$

$\lambda N_{\langle s,et\rangle}\lambda x_e.\mathbf{good}(@)(\lambda w'_s\lambda y'_e.\mathbf{assign}(w')(y')(\mathbf{a}))(x) >!$

$\mathbf{s}(\lambda y_e : N(@)(y).\mathbf{good}(@)(\lambda w'_s\lambda y'_e.\mathbf{assign}(w')(y')(\mathbf{a}))(y)) \wedge N(@)(x)$

d. Fourth argument:

$[(115c)](\lambda w_s\lambda x_e.\mathbf{book}(w)(x)) =$

$\lambda x_e.\mathbf{good}(@)(\lambda w'_s\lambda y'_e.\mathbf{assign}(w')(y')(\mathbf{a}))(x) >!$

$\mathbf{s}(\lambda y_e : \mathbf{book}(@)(y).\mathbf{good}(@)(\lambda w'_s\lambda y'_e.\mathbf{assign}(w')(y')(\mathbf{a}))(y)) \wedge \mathbf{book}(@)(x)$

e. Fifth argument:

$[(115d)](\mathbf{m}) =$

$\mathbf{good}(@)(\lambda w'_s\lambda y'_e.\mathbf{assign}(w')(y')(\mathbf{a}))(\mathbf{m}) >!$

$\mathbf{s}(\lambda y_e : \mathbf{book}(@)(y).\mathbf{good}(@)(\lambda w'_s\lambda y'_e.\mathbf{assign}(w')(y')(\mathbf{a}))(y)) \wedge \mathbf{book}(@)(\mathbf{m})$

(116) $\mathbf{good}(@)(\lambda w'_s\lambda y'_e.\mathbf{assign}(w')(y')(\mathbf{a}))(\mathbf{m}) >!$

$\mathbf{s}(\lambda y_e : \mathbf{book}(@)(y).\mathbf{good}(@)(\lambda w'_s\lambda y'_e.\mathbf{assign}(w')(y')(\mathbf{a}))(y)) \wedge \mathbf{book}(@)(\mathbf{m}) = 1$ iff (i) the degree of goodness associated in the actual world with the proposition 'one assigns *Middlemarch*' significantly exceeds the standard of goodness associated in the actual world with the propositions 'one assigns y', for y that are books in the actual world; and (ii) *Middlemarch* is a book in the actual world.

The expression shown in (116) represents the meaning of the clausal AIC *Middlemarch is a good book to assign*. Recall from the lexical entry for *good* in (113) that the expression

$\mathbf{good}(@)(\lambda w'_s \lambda y'_e.\mathbf{assign}(w')(y')(\mathbf{a}))(\mathbf{m})$ is interpreted as the degree of goodness associated in the actual world (@) with the proposition $\lambda w_s.\mathbf{assign}(w)(\mathbf{m})(\mathbf{a})$, i.e., 'one assigns *Middlemarch*'. The expression $\mathbf{s}(\lambda y_e : \mathbf{book}(@)(y).\mathbf{good}(@)(\lambda w'_s \lambda y'_e.\mathbf{assign}(w')(y')(\mathbf{a}))(y))$—the standard of comparison—is interpreted as the standard of goodness computed in the actual world from the propositions $\lambda w.\mathbf{assign}(w)(y)(\mathbf{a})$, for those y that are books in the actual world.

This, I claim, is a reasonable first approximation of the meaning of our clausal AIC. Clausal AICs in the positive degree are interpreted essentially just like ordinary attributive positives such as *Middlemarch is a good book*, with the obvious proviso that the gradable property has become more complex as a result of the adjective's composition with the infinitival relative. The semantic representation shown in (116) is meant to highlight the similarity between positive clausal AICs and other attributive positives. Aside from the two most basic components of attributive positive meaning identified in chapter 2—the 'significantly exceeds' comparison relation and the conjoined nominal predication—positive clausal AICs also exhibit the characteristic domain restriction on the argument of **s**, the standard-identification function. Thus, in *Middlemarch is a good book to assign*, we are dealing with a standard of good-to-assign–ness not for things in general, but for books.

It should come as no great surprise that the semantic apparatus developed in chapter 2 for attributive positives can be applied relatively directly to clausal AICs. Clausal AICs, after all, are simply another attributive gradable adjective construction. A benefit of stressing this commonality is that it lets us offer a straightforward explanation for the very different semantic effects of the infinitival relative clause in nominal vs. clausal AICs.

The differences stem ultimately from the syntactic position of the infinitival relative, which affects the way it composes with POS_{attr}/$\text{POS}^{claus}_{attr}$ and, in turn, its role in producing the overall interpretation of the sentence. In nominal AICs, the infinitival relative adjoins to NP and is therefore involved in restricting the domain of the gradable property that serves as the argument of the standard-identification function **s**. The domain-restricting effect of the infinitival relative is lost outside of positives, e.g. in comparatives, where the standard of comparison is computed directly from the structure of the *than* clause. In clausal AICs, meanwhile, the infinitival relative is not involved in domain restriction; rather, it is used to form the complex gradable property with respect to which a comparison is being made. It has this effect in both positives and comparatives, as the complex gradable property is an integral part of both sentence types. This is the reason why nominal AICs lose their characteristic interpretation in the comparative degree, but clausal AICs do not.

To illustrate this last point, let us consider the derivation of the comparative clausal AIC *Middlemarch is a better book to assign than Emma is.* I will follow Kennedy and Merchant's (2000) analysis of attributive comparatives and assume that the surface structure of the *than* clause is derived by VP ellipsis. At LF, the sentence thus looks like (117).

(117) *Middlemarch* is a [-er than Op_i [*Emma* is a d_i-good-to-assign book]] good-to-assign book.

For simplicity, I will assume that the *than* clause in our comparative clausal AIC has the following denotation: $\lambda w_s.\mathbf{good}(w)(\lambda w'_s \lambda x_e.\mathbf{assign}(w')(x)(\mathbf{a}))(\mathbf{e})$.[18] That is, for a

[18] In a more explicit derivation, we might have the *than* clause denote a set of degrees and rely on the maximality operator of von Stechow (1984) and Rullmann (1995) to return a single degree for comparison. In addition, the simplified derivation shown here ignores the fact that *Emma* is asserted to be a book.

world w, it returns the degree of good-to-assign–ness associated in w with *Emma*. We can then propose the lexical entry for attributive -er^{claus}_{attr} shown in (118) and the full sentence derivation shown in (119).

(118) $[\![\text{-}er^{claus}_{attr}]\!] = \lambda w_s \lambda d_{\langle s,d\rangle} \lambda G_{\langle s,\langle\langle s,et\rangle,ed\rangle\rangle} \lambda P_{\langle s,et\rangle} \lambda N_{\langle s,et\rangle} \lambda x_e . G(w)(P)(x) > d(w)$
$\wedge N(w)(x)$

(119) $[\![\text{-}er^{claus}_{attr}]\!]([\![@]\!])([\![\textit{than Emma is}]\!])([\![\textit{good}]\!])([\![\textit{to assign}]\!])([\![\textit{book}]\!])([\![\textit{Middlemarch}]\!]) =$
$\mathbf{good}(@)(\lambda w_s \lambda x_e . \mathbf{assign}(w)(x)(\mathbf{a}))(\mathbf{m}) > \mathbf{good}(@)(\lambda w_s \lambda x_e . \mathbf{assign}(w)(x)(\mathbf{a}))(\mathbf{e})$
$\wedge \mathbf{book}(@)(\mathbf{m})$

According to our truth conditions for *good* above in (113), the comparison in (119) states that the degree of goodness associated in the actual world with the proposition 'one assigns *Middlemarch*' is greater than that associated with the proposition 'one assigns *Emma*'. This corresponds quite closely to our intuitions about what the sentence means. Our analysis of clausal-AIC semantics, in which the infinitival relative forms part of the gradable property instead of restricting its domain, thus makes it straightforward to account for the meaning of both positive and comparative clausal AICs.

3.4.2 A Modal Semantics for Gradability

With a degree-based semantics for clausal AICs now established, we are ready to consider the modality of clausal-AIC adjectives in greater detail. The discussion in the previous section was purposefully inexplicit about adjectival modality. The major goal of this section is to develop a mapping between the degree-based semantics for gradability described above and the modal semantics needed to account properly for the meaning of clausal-AIC

adjectives.

3.4.2.1 Motivation

Modality is a fundamental part of the interpretation of clausal AICs. The infinitival clauses of clausal AICs are not used to talk about what actually is, has been, or will be the case. Rather, they are used to talk about what is true in worlds other than the actual world: those consistent with what is desirable, likely, irritating, impossible, and so on. Consider the examples in (120).

(120) a. *Middlemarch* is a good book to assign.

b. Mars is a difficult place for humans to reach.

c. Bob is an annoying person to talk to.

Sentence (120a) says nothing about whether *Middlemarch* has been or will be assigned in the actual world; it is a statement about worlds consistent with what is good or desirable. One might get the sense that (120a) makes a prediction about the future, but this is easily shown to be a cancellable implicature: *Middlemarch is a good book to assign, but no one will ever assign it.* Similarly, (120b) may be judged true even if, in the entire course of history, no human ever sets foot on Mars. Note that this is not simply an effect of the negative adjective, *difficult*. The minimally different clausal AIC containing its polar opposite, *easy*, also fails to require that any human reach Mars: *Mars is an easy planet for humans to reach, but no human has, or ever will, set foot there.* Sentence (120c), on the other hand, seems to require that someone have talked to Bob at some point in the past: *#Bob is an annoying person to talk to, but no one has ever talked to him.* I suggest that this is a

result of the lexical semantics of the adjective *annoying*: the emotional state described by the adjective requires some actual stimulus in order to be used felicitously. Importantly, though, the clausal AIC in (120c) says nothing about whether anyone actually is talking to Bob or will talk to Bob. It seems, then, that we need to make reference to other possible worlds no matter what the choice of adjective in clausal AICs.

It is the adjective in a clausal AIC that specifies how particular accessible worlds are related to one another. With *good*, for instance, we have a different relationship among the accessible worlds than we do with *difficult*. Formally, the adjective imposes a partial ordering on the set of accessible worlds. It is an ORDERING SOURCE in the sense of Kratzer (1981, 1991), operating on a set of worlds provided by a circumstantial modal base (i.e., not an epistemic one). This is an important departure, in form if not in spirit, from the degree-based analysis of clausal AICs presented earlier. On the degree-based approach, the gradable adjective imposes a partial ordering on degrees, and the Deg^0 head specifies a comparison relation defined on degrees. The major formal difference introduced with the modal analysis in this section is that the adjective imposes a partial ordering on possible worlds, and the Deg^0 head specifies a comparison relation defined on possible worlds.

A moment's reflection confirms that this is the most sensible approach to the problem of gradability vs. modality. In particular, it is difficult or perhaps impossible to define the notion 'the degree of goodness associated with a particular proposition' that was introduced in section 3.4.1. The difficulty lies in determining, for a proposition p, which of the p-worlds (i.e., the worlds in which p is true) count towards determining p's degree of goodness (or whatever other gradable property is at issue). For it will typically be the case that p is

true in some worlds that are largely consistent with what is good and also in some worlds that are largely inconsistent with what is good. We must therefore rethink our approach to what the adjective in a clausal AIC is putting in order. With gradable adjectives that take individual-type arguments, like *tall*, it is possible to order the set of entities according to their degree of height. With a gradable modal like *good*, by contrast, it is impossible to order the set of propositions according to the degree of goodness of the worlds they are true in; rather, we must order the worlds themselves (i.e., the sets of sets of propositions) according to their degree of overlap with the *good* ideal: the set of ideally good propositions, or, equivalently, the world in which all true propositions are good. By specifying the set of ideally good propositions, the adjective *good* serves as a modal ordering source and makes it possible to state comparisons of the type we are interested in for clausal AICs.

3.4.2.2 Implementation

Syntactically, of course, the attributive adjective still takes a propositional argument (even if built up piecemeal), and we must provide an analysis of how this constituent is interpreted. The intuition behind the analysis presented below is the following: for a proposition p, the expression **good**(p) denotes the world closest to the *good* ideal in which p is true, i.e., the best p-world. This is stated somewhat more formally in (121) (where $\imath$ is the definite description operator).[19]

(121) $[\![\textit{good}]\!] = \lambda w_s \lambda p_{\langle s,t\rangle}.\imath w'_s[w' \in p \wedge \forall w''_s[w'' \in p \rightarrow w' \leq_{\text{GOOD}(w)} w'']]$

[19]Note that GOOD(w) denotes a set of propositions, i.e., an ordering source: the set of propositions that are ideally good in w. This is in contrast to the type of the expression *good*(w) as defined in (121), which denotes a function from propositions to worlds.

The expression $w' \leq_{\text{GOOD}(w)} w''$ means that world w' is at least as close as world w'' to the *good* ideal in world w.[20] Following Kratzer (1991:644), we may define a world's closeness to the ideal in terms of the subset of ideal propositions that are true in it: $w' \leq_{\text{GOOD}(w)} w''$ iff $\{p|p \in \text{GOOD}(w) \wedge w'' \in p\} \subseteq \{p|p \in \text{GOOD}(w) \wedge w' \in p\}$, for all accessible w' and w'', and likewise for any other ordering source. (Recall that, in all of this, we are assuming a circumstantial modal base that provides the relevant set of accessible worlds.)

The intuition captured in (121) is that, when we talk about the degree of goodness of a proposition, we are really talking about best world in which it is true, i.e., a definite description of a world.[21] This notion is similar in spirit to the maximality operator used for degree comparison by von Stechow (1984) and Rullmann (1995), which returns a definite description of a degree. Importantly, using a definite description in our implementation makes it possible to provide a compositional analysis of clausal-AIC modality. Consider the comparative clausal AIC *Middlemarch is a better book to assign than Emma is.* The relationship between worlds described by this sentence cannot be properly accounted for

[20] Following conventional practice, I use the 'less than or equal to' symbol, $\leq$, to indicate for world comparison what the 'greater than or equal to' symbol, $\geq$, indicates for degree comparison. The reason for the symbolic reversal is that degree comparison measures distance from the bottom of the scale (i.e., zero), while world comparison measures distance from the top of the scale (the ideal world as determined by the relevant ordering source). The world comparison operator will always carry a subscript to indicate the ordering source, so no confusion should result.

[21] A technical note: it may be the case that a model fails to have a unique best world in which a proposition p is true (i.e., a unique best p-world), as required by the $\imath$ operator (see appendix for full specification). Since the ordering source specifies only a partial ordering on the set of accessible worlds, there may be more than one world that satisfies the description in (121)/(122a). In this case, there are multiple p-worlds of equal goodness, all of which are better than all of the remaining p-worlds. To cover such situations, we may simply amend the semantics of adjectives like *good* to denote the unique set of best p-worlds, i.e., of p-worlds that, while all equally good, surpass all others in goodness. Call this set $\mathcal{W}$. The lexical entry for *good* is then $\lambda w_s \lambda p_{\langle s,t\rangle}.\imath \mathcal{W}_{\langle s,t\rangle}[\forall w'_s[w' \in \mathcal{W} \rightarrow w' \in p \wedge \forall w''_s[w'' \in p \rightarrow w' \leq_{\text{GOOD}(w)} w'']]]$. We must then also amend the lexical entry for $\text{POS}^{claus}_{attr}$ below in (122b) to state that all worlds in $\mathcal{W}$ significantly exceed the relevant standard. Having noted that these amendments can be made if required for a given model, I will carry on in the main text with the simplifying assumption that, in our model, for a given ordering source, there is always a unique best world in which a given proposition is true.

compositionally by means of universal or existential quantification alone. The sentence does not state that every *Middlemarch*-world[22] is closer to the ideal than every *Emma*-world; this will be violated by any combination of a relatively bad *Middlemarch*-world and a relatively good *Emma*-world. Nor does it say that some *Middlemarch*-world is closer to the ideal than some *Emma*-world; this statement is too weak, just as the previous one is too strong.

If we want to have a compositional analysis of the sentence, we cannot mix and match quantificational operators in the two clauses (matrix and *than*), as they share an underlying structure. At LF, the two clauses that serve as arguments of *-er* have exactly the same structure, modulo the direct object. This rules out the otherwise impeccable analysis which states that for every *Emma*-world, there is a *Middlemarch*-world that is closer than it to the ideal. If we instead treat both clauses as definite descriptions of worlds, we solve the compositionality problem: we simply state that the best *Middlemarch*-world is closer to the ideal than the best *Emma*-world. Note that this is logically equivalent to the mixed universal–existential analysis.

With these preliminaries established, we are ready to state the formal modal analysis of clausal AICs. As above, I will focus on the positive example *Middlemarch is a good book to assign* and the comparative example *Middlemarch is a better book to assign than Emma is*. Many details of the semantics proposed in section 3.4.1 can be maintained without modification here. The major differences are the revised lexical entries for the adjective *good* and the Deg^0 head $\text{POS}^{claus}_{attr}$ shown in (122), which now state orderings on possible worlds rather than on degrees.

[22] I use the abbreviation "*Middlemarch*-world" to refer to a world in which the proposition 'one assigns *Middlemarch*' is true; likewise for "*Emma*-world."

(122) a. $[\![\textit{good}]\!] = \lambda w_s \lambda P_{\langle s,et\rangle} \lambda x_e . \imath w'_s [w' \in \lambda u_s . P(u)(x) \wedge \forall w''_s [w'' \in \lambda u_s . P(u)(x) \rightarrow w' \leq_{\text{GOOD}(w)} w'']]$

b. $[\![\text{POS}^{claus}_{attr}]\!] = \lambda w_s \lambda G_{\langle s,\langle\langle s,et\rangle,es\rangle\rangle} \lambda P_{\langle s,et\rangle} \lambda N_{\langle s,et\rangle} \lambda x_e . G(w)(P)(x) <!_{\mathcal{F}(G)(w)} \mathbf{s^w}(\lambda y_e : N(w)(y).G(w)(P)(y)) \wedge N(w)(x)$

Several comments on the lexical entries in (122) are in order. The entry for *good* in (122a) differs from the one in (121) in its piecemeal composition of the adjective's propositional argument. This reflects the fact that, in clausal AICs, adjectives like *good* combine not with fully saturated clauses but with infinitival relatives; the matrix subject eventually binds the missing argument position. This adjustment is straightforward, though it leads to a slightly more complicated statement of the relevant proposition in the body of the lexical entry: compare $w' \in p$ in (121) to $w' \in \lambda u_s . P(u)(x)$ in (122a). With the proposition built up from P and x instead of provided all at once as p, we must refer to $\lambda u_s . P(u)(x)$—i.e., the intension of $P(w)(x)$—in (122a) when talking about the worlds in which our proposition of interest is true.[23] Finally, note in (122a) that *good* and GOOD are quite different types of entities, and are not to be confused. *Good* is the attributive adjective, an element of type $\langle s, \langle\langle s, et\rangle, es\rangle\rangle$ that ultimately returns a definite description of a world. GOOD is the modal ordering source associated with the adjective *good*: for a given world, it returns the set of ideally good propositions, or, equivalently, the ideally good world.

The revised lexical entry for $\text{POS}^{claus}_{attr}$ in (122b) is largely similar to the entry proposed in (114) above in the degree-based analysis of section 3.4.1. As in the earlier analysis, $\text{POS}^{claus}_{attr}$

[23] This depends, of course, on our analyzing the infinitival relative—the P argument—as a constituent of type $\langle s, et\rangle$. If instead we were to analyze it as a constituent of type $\langle e, st\rangle$, then we could simply use the expression $w' \in P(x)$ in our lexical entry in (122a) (with attendant changes to the lexical entry for $\text{POS}^{claus}_{attr}$). As we get the same semantic result either way, I will maintain the $\langle s, et\rangle$ analysis here.

specifies a relationship between a reference value and a standard of comparison computed with the standard-identification function, and in addition it states that the matrix subject belongs to the category denoted by the noun N. The major difference in (122b), of course, is that the comparison expressed by $\textsc{pos}^{claus}_{attr}$ is now a comparison of worlds, not of degrees. It is clear from the lexical entry for *good* in (122a) that the expression $G(w)(P)(x)$ in (122b) will denote a (definite description of a) world. In order for the comparison to be a valid one, we must use a modified standard-identification function, which I call $\mathbf{s^w}$: instead of a function from measure functions to degrees like $\mathbf{s}$ (type $\langle ed, d\rangle$), $\mathbf{s^w}$ is the corresponding function with possible worlds (type $\langle es, s\rangle$). For our example, *Middlemarch is a good book to assign*, $\mathbf{s^w}$ will take as its argument the best *one assigns* x-worlds for those x that are books, and return a world of standard goodness based on them. We thus have worlds on both sides of the comparison.

The comparison itself, meanwhile, is based on the partial ordering imposed by the modal ordering source associated with the adjective. The $<!$ symbol in (122b) is an adaptation of the $>!$, or 'significantly exceeds', relation discussed above in the degree-based analysis, which was introduced in order to deal with the lack of so-called "crisp judgments" with POS (see section 2.3.4 above; Fara 2000, Kennedy 2007). Thus, $w' <!_{\textsc{os}} w''$ means that w' is significantly closer than w'' to the ideal established by the ordering source OS. By our Kratzerian definition of the closeness of worlds to the ideal, this means that the ideal propositions true in w' must be a proper superset of those true in w'', and in addition that the disparity between the two sets must be significant, or noticeable (however one chooses to define the notion). Regarding the ordering source itself, we must bear in mind that the

adjective and its associated ordering source are not one and the same thing. For this reason, in (122b) I introduce the dummy function $\mathcal{F}$ to compute the ordering source associated with the adjective G that composes with $\text{POS}^{claus}_{attr}$. In this way, from the adjective *good*, we get the ordering source $\mathcal{F}(good) = \text{GOOD}$.

We are now ready to see the composition of the entire positive clausal AIC. As in the degree-based version above in (115), I will show the composition one argument at a time for the sake of legibility in (123). Truth conditions for the resulting expression are given in (124). (Also as above, I use the constant **a** of type e to represent the arbitrary PRO subject of the infinitival relative clause.)

(123) $[\![\text{POS}^{claus}_{attr}]\!]([\![@]\!])([\![good]\!])([\![to\ assign]\!])([\![book]\!])([\![Middlemarch]\!])$

a. First argument:

$[\lambda w_s \lambda G_{\langle s,\langle\langle s,et\rangle,es\rangle\rangle} \lambda P_{\langle s,et\rangle} \lambda N_{\langle s,et\rangle} \lambda x_e . G(w)(P)(x) <!_{\mathcal{F}(G)(w)}\ \mathbf{s^w}(\lambda y_e :$

$N(w)(y).G(w)(P)(y)) \wedge N(w)(x)](@) =$

$\lambda G_{\langle s,\langle\langle s,et\rangle,es\rangle\rangle} \lambda P_{\langle s,et\rangle} \lambda N_{\langle s,et\rangle} \lambda x_e . G(@)(P)(x) <!_{\mathcal{F}(G)(@)}\ \mathbf{s^w}(\lambda y_e :$

$N(@)(y).G(@)(P)(y)) \wedge N(@)(x)$

b. Second argument:

$[(123a)](\lambda w_s \lambda P_{\langle s,et\rangle} \lambda x_e . \lambda w'_s [w' \in \lambda u_s . P(u)(x) \wedge \forall w''_s [w'' \in \lambda u_s . P(u)(x) \rightarrow$

$w' \leq_{\text{GOOD}(w)} w'']]) =$

$\lambda P_{\langle s,et\rangle} \lambda N_{\langle s,et\rangle} \lambda x_e . \lambda w'_s [w' \in \lambda u_s . P(u)(x) \wedge \forall w''_s [w'' \in \lambda u_s . P(u)(x) \rightarrow$

$w' \leq_{\text{GOOD}(@)} w'']] <!_{\mathcal{F}(good)(@)}\ \mathbf{s^w}(\lambda y_e : N(@)(y).\lambda w'_s [w' \in \lambda u_s . P(u)(y) \wedge$

$\forall w''_s [w'' \in \lambda u_s . P(u)(y) \rightarrow w' \leq_{\text{GOOD}(@)} w'']]) \wedge N(@)(x)$

c. Third argument:

$[(123b)](\lambda w_s \lambda x_e.\mathbf{assign}(w)(x)(\mathbf{a})) =$

$\lambda N_{\langle s,et\rangle} \lambda x_e.\imath w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(x)(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(x)(\mathbf{a}) \rightarrow$

$w' \leq_{\mathrm{GOOD}(@)} w'']] <!_{\mathrm{GOOD}(@)} \mathbf{s^w}(\lambda y_e : N(@)(y).\imath w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a})$

$\wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a}) \rightarrow w' \leq_{\mathrm{GOOD}(@)} w'']]) \wedge N(@)(x)$

d. Fourth argument:

$[(123c)](\lambda w_s \lambda x_e.\mathbf{book}(w)(x)) =$

$\lambda x_e.\imath w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(x)(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(x)(\mathbf{a}) \rightarrow$

$w' \leq_{\mathrm{GOOD}(@)} w'']] <!_{\mathrm{GOOD}(@)} \mathbf{s^w}(\lambda y_e : \mathbf{book}(@)(y).\imath w'_s[w' \in$

$\lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a}) \rightarrow w' \leq_{\mathrm{GOOD}(@)} w'']]) \wedge$

$\mathbf{book}(@)(x)$

e. Fifth argument:

$[(123d)](\mathbf{m}) =$

$\imath w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(\mathbf{m})(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(\mathbf{m})(\mathbf{a}) \rightarrow$

$w' \leq_{\mathrm{GOOD}(@)} w'']] <!_{\mathrm{GOOD}(@)} \mathbf{s^w}(\lambda y_e : \mathbf{book}(@)(y).\imath w'_s[w' \in$

$\lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a}) \rightarrow w' \leq_{\mathrm{GOOD}(@)} w'']]) \wedge$

$\mathbf{book}(@)(\mathbf{m})$

(124) $\imath w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(\mathbf{m})(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(\mathbf{m})(\mathbf{a}) \rightarrow$

$w' \leq_{\mathrm{GOOD}(@)} w'']] <!_{\mathrm{GOOD}(@)} \mathbf{s^w}(\lambda y_e : \mathbf{book}(@)(y).\imath w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a})$

$\wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a}) \rightarrow w' \leq_{\mathrm{GOOD}(@)} w'']]) \wedge \mathbf{book}(@)(\mathbf{m}) = 1$ iff, according to the *good* ideal in the actual world, the best world in which *Middlemarch* gets assigned is significantly closer to the *good* ideal than the standard for best worlds

in which things are that books (in the actual world) get assigned, and *Middlemarch* is a book in the actual world.

I believe that the composition and truth conditions in (123) and (124) provide the correct interpretation for our clausal AIC, *Middlemarch is a good book to assign.* The interpretation highlights the fact that in clausal AICs we are concerned not so much with the infinitival proposition itself (i.e., the full set of worlds in which it is true) as with the degree to which it is compatible with the modal ideal. By adapting our gradable semantics from the degree-based approach of section 3.4.1 to the modal approach developed here, we are able to state the relevant comparison—a comparison of worlds—precisely, succinctly, and in a fully compositional way. Moreover, in doing so we are able to retain much of the analysis of gradability and the specific semantics of POS_{attr} that was developed in our analysis of nominal AICs in chapter 2, and that has been employed by other scholars in their analyses of positives (Fara 2000; Kennedy 2007).

The comparison-of-worlds analysis extends naturally to comparative clausal AICs, as well. As discussed in the previous section, I propose that in a comparative clausal AIC like *Middlemarch is a better book to assign than Emma is*, the surface form of the *than* clause is derived by VP ellipsis. For simplicity, I will assume the *than* clause denotes, for a world w, the best accessible world in which one assigns *Emma*: $\lambda w_s.\imath w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(\mathbf{e})(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(\mathbf{e})(\mathbf{a}) \rightarrow w' \leq_{\text{GOOD}(w)} w'']]$. We can then propose the lexical entry for $\textit{-er}^{claus}_{attr}$ shown in (125) and the composition shown in (126) (cf. (118) and (119) above).

(125) $[\![\textit{-er}^{claus}_{attr}]\!] = \lambda w_s \lambda d_{\langle s,s\rangle} \lambda G_{\langle s,\langle\langle s,et\rangle,es\rangle\rangle} \lambda P_{\langle s,et\rangle} \lambda N_{\langle s,et\rangle} \lambda x_e.G(w)(P)(x) <_{\mathcal{F}(G)(w)} d(w) \wedge N(w)(x)$

(126) $[\![\text{-}er^{claus}_{attr}]\!]([\![@]\!])([\![\textit{than Emma is}]\!])([\![\textit{good}]\!])([\![\textit{to assign}]\!])([\![\textit{book}]\!])([\![\textit{Middlemarch}]\!]) =$

$\imath w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(\mathbf{m})(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(\mathbf{m})(\mathbf{a}) \rightarrow w' \leq_{\text{GOOD}(@)} w'']] <_{\text{GOOD}(@)} \imath w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(\mathbf{e})(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(\mathbf{e})(\mathbf{a}) \rightarrow w' \leq_{\text{GOOD}(@)} w'']] \wedge \mathbf{book}(@)(\mathbf{m})$

The $<_{\mathcal{F}(G)(w)}$ relation in the lexical entry in (125) simply means 'is closer to the ideal than', for an ideal established by the ordering source $\mathcal{F}(G)(w)$. This relation can be defined with reference to the set of ideal propositions or in terms of the $\leq$ relation defined earlier: for any accessible worlds w' and w'' and ordering source OS, $w' <_{\text{OS}} w''$ iff $w' \leq_{\text{OS}} w'' \wedge \neg(w'' \leq_{\text{OS}} w')$ (Kratzer 1991:644).

The expression in (126) provides the appropriate interpretation for our comparative clausal AIC. It is true just in case the best world in which *Middlemarch* gets assigned is closer to the *good* ideal than the best world in which *Emma* gets assigned, and *Middlemarch* is actually a book.[24] Note that our semantics for the sentence says nothing about whether either book counts independently as a good book to assign according to a relevant standard. This is just what we want: the sentence *Middlemarch is a better book to assign than Emma is* can be uttered felicitously in contexts where both books are good books to assign, where neither book is, or where *Middlemarch* is but *Emma* is not. All of these scenarios are countenanced by the semantics in (126). All that is required is that the best *Middlemarch*-world, however good or bad it is, be better than the best *Emma*-world. Our modal semantics thus handles both positive and comparative clausal AICs in a fully compositional way.

[24]We presumably also want our semantics to say that *Emma* is a book. I have left this element out of the interpretation for the sake of expediency, in the name of focusing on the comparison relation, but with a more detailed derivation of the *than* clause we could add it without serious difficulty.

3.4.2.3 An Additional Benefit

By its design, the modal semantics for clausal AICs developed here restricts our attention to those worlds in which the proposition associated with the infinitival clause is true. As I show in this section, this has positive consequences for the descriptive adequacy of our analysis. It ensures that statements made about the goodness or badness of a particular proposition are not fully general, but rather are relativized to situations involving the proposition in question.

Consider our parade example, *Middlemarch is a good book to assign*. It is tempting at first sight to paraphrase this sentence as 'it is good to assign *Middlemarch*', as we have done above. Certainly it seems that if *Middlemarch* is a good book to assign, it should be true in general that it is good to assign it. The inadequacy of this paraphrase template becomes clear, however, when we consider examples like those in (127).[25]

(127) a. Polonium is a good substance to poison your enemies with.

b. The top of the head is a common part of the body for lightning to strike.

Example (127a) does not mean that it is good, in general, to poison one's enemies with polonium. Likewise, (127b) in no way claims that it is generally common for lightning to strike people's heads. Rather, the claims of goodness and commonness made by the clausal AICs in (127) are relativized to those situations in which an event of the type described by the infinitival clause takes place; i.e., (127b) says that the top of the head is a common target *in the event of a lightning strike*. Our semantics for clausal AICs must account for these facts if it is to be descriptively adequate.

[25]Thanks to Chris Barker for coming up with example (127a) and for pointing out its importance to me.

Fortunately, the semantics proposed in the previous subsection already accounts for the facts described here. We can see this by considering the interpretation of (127a). For simplicity, I will treat the verbal complex *poison your enemies with* as the predicate $\lambda w_s \lambda x_e \lambda y_e.\mathbf{poison\text{-}enemies}(w)(x)(y)$, which is true just in case y poisons his enemies with x in world w. *Polonium* is represented as the constant $\mathbf{p}$, of type e. The full composition will be as in (128).

(128) $[\![\text{POS}^{claus}_{attr}]\!]([\![@]\!])([\![good]\!])([\![to\ poison\ your\ enemies\ with]\!])([\![substance]\!])([\![polonium]\!]) =$

$\imath w'_s[w' \in \lambda u_s.\mathbf{poison\text{-}with}(u)(\mathbf{p})(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{poison\text{-}with}(u)(\mathbf{p})(\mathbf{a}) \rightarrow$

$w' \leq_{\text{GOOD}(@)} w'']] <!_{\text{GOOD}(@)}\ \mathbf{s^w}(\lambda y_e : \mathbf{substance}(@)(y).\imath w'_s[w' \in$

$\lambda u_s.\mathbf{poison\text{-}with}(u)(y)(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{poison\text{-}with}(u)(y)(\mathbf{a}) \rightarrow$

$w' \leq_{\text{GOOD}(@)} w'']]) \wedge \mathbf{substance}(@)(\mathbf{p})$

The truth conditions for the expression in (128) are familiar from above: the expression is true just in case the best world in which one poisons one's enemies with polonium is significantly closer to the *good* ideal than the standard for best worlds in which one poisons one's enemies with things that are substances, and polonium is a substance in the actual world. The truth conditions make no claim about whether it is good in general to poison one's enemies. Rather, they simply state a comparison involving worlds in which one poisons one's enemies with various substances. The relativization of the goodness judgment described above is thus a fundamental part of the clausal-AIC semantics developed in the previous subsection. That this interpretation falls out naturally from the design of the semantics proposed above is, I believe, a significant point in the latter's favor.

3.4.3 A Further Ambiguity

Finally, I will discuss an ambiguity in clausal-AIC interpretation that has not been addressed above. The ambiguity concerns whether or not the noun meaning has a role in constructing the interpretation of the gradable predicate: e.g., the clausal AIC *Bob is a good lawyer to talk to* may be understood either as meaning that Bob is good to talk to and also a lawyer (roughly the meaning assigned above) or that Bob is good to talk to in his capacity as a lawyer.[26] The second reading is not captured by the semantics for clausal AICs developed in the previous section. Here I discuss the nature of the ambiguity in detail, establishing some basic parameters for what an adequate account of it must look like. My conclusion at this time is that the ambiguity is pragmatic in nature and not amenable to formal semantic characterization.

At the heart of the ambiguity in question is the matter of whether or not the gradable property applies to the subject *qua* member of the category denoted by the matrix noun. For this reason, I call the ambiguity the *qua*-ambiguity, and the second reading described above the *qua*-reading. In order to convince ourselves that we are dealing with a true ambiguity and that the *qua*-reading is a real reading of clausal AICs, consider the comparative clausal AICs in (129).

(129) a. Bob is a better man to talk to than Steve is.

b. Bob is a better lawyer to hire than Steve is. $\nleftrightarrow$ Bob is a better musician to hire than Steve is.

The sentence in (129a) may be either true or false, depending on which reading we

[26] I thank Manfred Krifka (personal communication, April 2007) for bringing this ambiguity and its importance to my attention.

assume. Imagine that, in general, Bob is more interesting than Steve, gives better advice, tells better stories, and so on. On the purely intersective reading—i.e., the 'good to talk to and also a man' reading—the sentence is then true. Now imagine further that, Bob's overall worth as an interlocutor notwithstanding, Steve is particularly knowledgeable and sage in matters relating to manhood, i.e., that he knows more than Bob about male health, psychology, grooming, etc. If we are interested in how good it is to talk to Bob and Steve in their capacity as men, then we may very well judge (129a) false. This shows that the *qua*-reading involves truth conditions different from those of the purely intersective reading, and hence that we are dealing with a real ambiguity.

The implicational failure shown in (129b) confirms the existence of a truth-conditional distinction, as the biconditional is predicted to be true on the purely intersective reading but false in both directions on the *qua*-reading. If both Bob and Steve are lawyers and musicians, and if it is better to hire Bob than it is to hire Steve, then we predict that the comparison will be true no matter how we choose to describe them (i.e., as lawyers or as musicians). If, on the other hand, we are interested in how good it is to hire them *qua* lawyer or musician, then it is clear that neither implication holds: Bob may be a better lawyer than Steve and Steve a better musician than Bob, or vice versa.

Note that the implicational failure on the *qua*-reading shown in (129b) cannot be explained by appealing to a difference between those possible worlds in which each man is a lawyer and those in which he is a musician. That is, we cannot rely for our explanation on a model in which the best world where Bob is a lawyer and also gets hired (w_1) is closer to the ideal than the best world where Steve is a lawyer and also gets hired (w_2), but the best

world in which Bob is a musician and gets hired (w_3) is farther from the ideal than the best world in which Steve is a musician and gets hired (w_4). Such a model would certainly be consistent with the non-implication shown in (129b). The problem is that the implicational failure on the *qua*-reading remains even if it is necessarily the case that both Bob and Steve are lawyers and musicians, i.e., even if each is both a lawyer and a musician in every possible world.[27] The *qua*-ambiguity is orthogonal to intensionality.

Despite the existence of the *qua*-ambiguity, the availability and salience of its two readings can vary greatly depending on the discourse context. In general, the *qua*-reading is more salient with some combinations of verb and NP than with others. In (130) I annotate each example according to the relative salience of the *qua*-reading in a neutral context.

(130) a. Bob is a good lawyer to talk to.

b. ? Bob is a good neighbor to talk to.

c. ?? Bob is a good person to emulate.

d. # Bob is a good person to talk to.

The *qua*-reading is readily available in (130a) but almost impossible to discern in (130d). This seems quite clearly to be a function of our world knowledge: one typically talks to a lawyer, as opposed to some other kind of person, for a specific professional or legal purpose, but this is not the case for people in general; indeed, except in rare cases, every event of talking involves talking to a person. It is therefore natural to understand that Bob is good to talk to *qua* lawyer in (130a), but odd to think that he is good to talk to *qua* person in (130d), as there is nothing special or informative about his being a person in

[27] Cf. Larson's (1998) discussion of the 'beautiful dancer' problem, and the inefficacy of an appeal to intensions. See section 2.4.2.1 for related discussion.

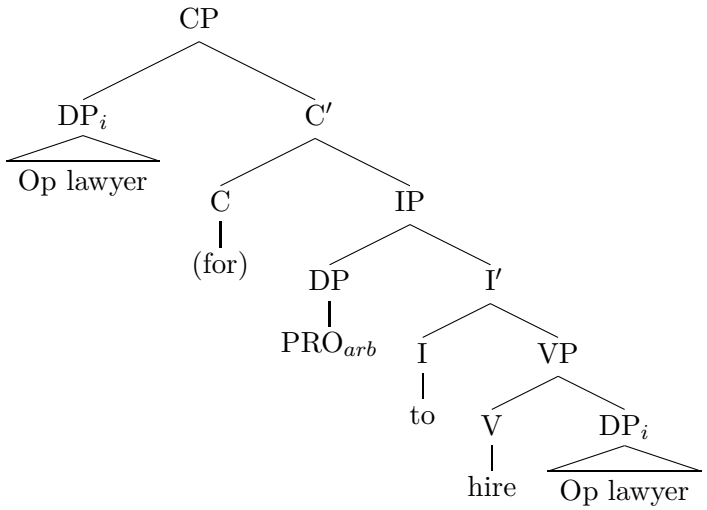
such a situation. In general, the *qua*-reading of clausal AICs is most readily available with infinitival verbs like *talk to*, *hire*, *consult*, *emulate*, and others for which the NP meaning is typically relevant or informative with respect to the situation denoted by the infinitival clause. In such cases the *qua*-reading may be the preferred reading of the sentence, though the purely intersective reading—i.e., the 'good to talk to and also a lawyer' reading—always remains available. Likewise, the *qua*-reading can be made salient in any clausal AIC, given an appropriate context. If the context is such that one typically carries on conversations with people, birds, computers, staplers, etc., then the *qua*-reading of (130d) becomes quite salient. The *qua*-ambiguity thus appears to be a pervasive one, affecting all clausal AICs, though the salience of one or the other of its readings may be highly context-dependent.

The general availability of the *qua*-ambiguity suggests that we ought to account for it structurally rather than lexically. It will not do, for example, to posit a lexical-semantic ambiguity for a particular class of verbs (*hire*, *consult*, and so on), as we are always able to coax a *qua*-reading to the surface given an appropriate context. Here I will consider one structural proposal for dealing with the *qua*-reading. Though I do not believe it is able to account for the reading directly, I leave open the possibility that it might provide an appropriate input to a pragmatic operation that yields the reading.

The structure I have in mind is the matching structure for relative clauses discussed briefly in section 2.3.1, in chapter 2. In the matching structure, the relative clause contains an internal copy of its head noun, which is deleted at PF under identity with an external (separately merged) copy of the head noun. A matching structure for the infinitival relative clause in the clausal AIC *Bob is a good lawyer to hire* is shown in (131). (Here I show

a derivation that assumes the copy theory of movement, following common practice for authors who use the matching analysis. "Op" represents an A′ operator in D^0 that pied-pipes its NP complement.)

(131)



Authors who make use of this version of the matching analysis (e.g., Bhatt 2002; Hulsey and Sauerland 2006) typically adopt the semantics for it developed by Fox (2002), which involves abstraction not just over a simple variable of type e, but over a variable that is required to take as its value something of the category denoted by the noun. In our example in (131), the relative clause would denote not the set of entities x such that one hires x, but instead the set of entities x such that one hires the lawyer x. The noun meaning is, on this view, an integral part of the relative clause meaning. In clausal AICs, this in turn has an effect on the meaning of the gradable predicate involved in the *qua*-ambiguity.

Let us consider in greater detail what the implications of a matching-analysis semantics would be for clausal AICs. On the analysis developed in section 3.4.2, a comparative clausal AIC like the one in (129b), *Bob is a better lawyer to hire than Steve is*, states that the best world in which Bob gets hired is closer to the *good* ideal than the best world in which Steve

gets hired.[28] With a matching analysis of the relative clause and a Fox-style semantics for interpreting it, the sentence would state instead that the best world in which THE LAWYER BOB gets hired is closer to the *good* ideal than the best world in which THE LAWYER STEVE gets hired. While the matching analysis ensures that Bob and Steve must be lawyers in the relevant worlds in which they get hired, it is unclear that it draws a connection of any kind between their being lawyers and their getting hired. That is, while it does something beyond what the semantics of section 3.4.2 does, it fails to get to the heart of the *qua*-reading.

I have no other structural proposal for how to deal with the *qua*-ambiguity. Indeed, I am not convinced that it is amenable to formal characterization, though one might look to a system like the one developed by Jäger (2003) for *as* adverbials as a starting point for such an undertaking. I suggest for now that it is a pragmatic ambiguity, one that makes reference to the purpose for which an action is performed and that depends heavily on world knowledge or contextual background for its availability. It is possible that something like the matching analysis of relative clauses could be of help in providing an appropriate structural input for whatever pragmatic process is involved in producing the *qua*-reading, though it is equally possible that the two are entirely unrelated. A thorough and theoretically well-grounded analysis of the *qua*-ambiguity—semantic, pragmatic, or some combination of the two—is something I must leave to future research.

[28]For present purposes, I focus only on the comparison relation and ignore the nominal predication involved in the interpretation of clausal AICs.

3.5 Summary

In this chapter I have presented a syntactically and semantically compositional analysis of clausal AICs. I have shown how a degree-based semantics for gradability of the sort developed in chapter 2 can be mapped onto a modal semantics for gradability in the spirit of Kratzer (1981, 1991), and how the modal analysis captures clausal-AIC meaning in a succinct, precise, and straightforward way. The adjectival diversity of clausal AICs is modeled not in terms of different scales, as it is with nominal AICs, but in terms of different partial orderings imposed on the set of accessible worlds by the different adjectives that occur in the construction. This system allows us to preserve the basic semantics of comparison developed earlier, an appropriate result given the fact that gradability in clausal AICs is characterized by the same phenomena—success or failure of inferences between positives and comparatives, lack of crisp judgments in positives, and so on—observed in other gradable-adjective constructions.

Moreover, the analysis of clausal AICs presented here suggests some interesting conclusions about the way in which modality may be built into adjectives. The semantic function of clausal-AIC adjectives is to specify a modal ordering source; these adjectives, it seems, never specify a modal base, and they do not quantify over accessible worlds in the manner of modal auxiliaries like *can* and *must*. Clausal AICs, as revealed in this study, are therefore of interest from the perspective of syntactic and semantic typology, as they suggest a constraint on the way in which elements of modal semantics may be expressed morphosyntactically. Absent a fuller typological picture, of course, this must remain a suggestion; but it points to an interesting avenue for further research in this area.

Chapter 4

Scale Structure and Standards in Positives

4.1 Overview: A Puzzle

Standards of comparison for positive gradable adjectives are a moving target. Though typically not expressed overtly, standards are clearly present in the semantics of positives, as evidenced by, among other things, the fact that positives can be used both to make scalar assertions that refer to an already agreed-upon standard (*Bob is a tall guy*) and to specify a standard value that allows such scalar assertions to be made (*No, THAT guy is a tall guy*), a phenomenon dubbed "sharpening" by Barker (2002). Despite their importance for the semantics of positives, positive standards of comparison can be difficult to pin down. In many cases, it is necessary to appeal to context in order to determine positive standards,

as we have done above with the standard-identification function **s** of Kennedy (2007).[1] As Kennedy demonstrates in that same work, however, the structure of the semantic scale associated with the adjective also plays a significant role in determining positive standards of comparison. Kennedy's major theoretical project is to implement an appropriate division of labor between scale structure and context in the determination of positive standards. In this chapter I suggest that AICs—in particular, nominal AICs—provide us with a valuable new source of evidence regarding the determination of standards for positives and the role of scale structure in this process.

At issue is the fact that not all gradable adjectives are permissible in nominal AICs. While many gradable adjectives can occur in nominal AICs and successfully give rise to the construction's characteristic inappropriateness interpretation, many others cannot. Consider the examples in (132).

(132) a. *Middlemarch* is a long book to assign.

b. That is a small house for a family of ten to live in.

c. ? That is an empty glass for Bob to make a toast with.

d. # That is a dry sponge to clean the counter with.

All of the adjectives used in the examples in (132) are gradable and may be felicitously used in comparison constructions (even *empty*: *Bob's glass is emptier than Susan's*). Nonetheless,

[1] One exception is positives that contain overt measure phrases, such as *Bob is a six-foot-tall man* and *Middlemarch is a 700-page-long book*. In cases like these, the standard is provided by the measure phrase. Note, though, that the comparison relation between reference value and standard value in such cases is $\geq$, not the $>!$ relation seen in ordinary positives and discussed above. This, along with the lexically sporadic availability of measure phrases (*#Bob is a 200-pound-heavy man*) has led Svenonius and Kennedy (to appear) to treat such examples as involving not POS but a distinct Deg^0 head, which they call MEAS.

(132a,b) are perfectly acceptable nominal AICs, while (132c,d) are not. Gradability alone is thus not sufficient to allow an adjective to occur in a nominal AIC.

As we will see below, the key to solving the puzzle in (132) lies in the structure of the scales associated with each of the adjectives, and the ways in which these structures interact with our contextual method of standard determination. The basic pattern for nominal AICs is consistent with the one observed for ordinary positives by Kennedy (2007). In nominal AICs, however, unlike in the positives examined by Kennedy, some overt phrasal material is involved in determining the standard, as we have seen in chapter 2: the inappropriateness interpretation depends crucially on the domain restriction of the input to **s** effected by the infinitival relative. Nominal AICs thus allow us to assess the interaction between scale structure and overt standard-determining material in positives, an interaction that is absent from the data examined by Kennedy. As I will show, this interaction reveals much about the role of scale structure in determining positive standards and about the aforementioned division of labor between scale structure and contextual factors. In particular, the evidence from nominal AICs offers a new perspective on the principle of "interpretive economy" introduced by Kennedy and on the way in which **s** computes standards.

The structure of the chapter is as follows. In section 4.2, I discuss recent work on the typology of semantic scales that will serve as background for my analysis. In section 4.3, I present the crucial generalizations about scale structure that allow us to predict adjective acceptability in nominal AICs. It is there as well that I discuss the theoretical implications of the nominal-AIC data for the determination of positive standards. Section 4.4 contains a short summary.

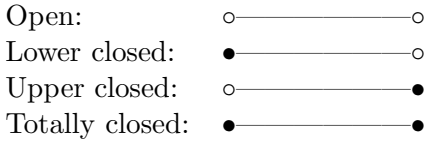
4.2 The Typology of Scales

4.2.1 Scale Structure

Much recent work on gradability has been focused on establishing a typology of gradable predicates. Formally, the object of inquiry is the structure of the semantic scales associated with gradable adjectives, with particular attention paid to the presence or absence of bounds, or endpoints, at one or both ends of the scale. In this section I summarize the typology of scale structures and review the tests devised by Yoon (1996), Rotstein and Winter (2004), and Kennedy and McNally (2005) for classifying particular adjectives. In the next subsection, I discuss the influence of scale structure on default standards of comparison for positives.

Semantic scales consist of a set of degrees, an ordering relation on those degrees, and a "dimension" that the degrees measure (height, age, length, etc.). Of greatest import for the typology of gradable adjectives is whether or not there is a minimal or maximal degree associated with a given scale, i.e., a degree that the ordering relation places at least as high (or low) as every other degree on the scale. With the scale extending in two directions and two possible states for each direction's extremity, we end up with a four-way distinction among scale types, as shown in (133) (Kennedy 2007:33): open circles represent unbounded extremities; filled circles represent bounded ones; the scales are ordered with degrees increasing in value from left to right.

(133) Scale structure typology:



In order to determine whether a particular gradable adjective is associated with an open scale or one of the closed scale types, the authors listed above employ endpoint-oriented adverbs like *completely* and *fully* to test for upper bounds and *partially* and *slightly* to test for lower bounds. Gradable adjectives can be classified according to their acceptability when modified by such adverbs, as shown in (134) through (137).

(134) Open scale (*long*, *old*): ○——————○

a. # That is a completely long book.

b. # That is a partially long book.

c. # Bob is a completely old person.

d. # Susan is a partially old person.

(135) Lower closed scale (*wet*, *dirty*): ●——————○

a. # That is a totally wet football.[2]

b. That is a slightly wet football.

c. # Those are completely dirty pants.

[2]We must be careful to distinguish the reading of *totally* and *completely* that refers to the subparts of the adjective's argument from the reading that refers to the degree of the gradable property. That is, while it is possible for *a totally wet football* to refer to a football that is 'wet through and through', i.e., a football all of whose subparts are wet, this is distinct from the reading we are interested in, namely the (unavailable) one in which the football in question has achieved a state of wetness that is, in itself, total, i.e., a state of wetness that cannot be surpassed by any other state of wetness. The same observation holds for *dirty pants* below. Note that *slightly* permits both the subpart reading and the degree-of-gradable-property reading in (135b); we are interested in the latter, according to which the (entire) football is wet, but could be wetter.

d. Those are slightly dirty pants.

(136) Upper closed scale (*secure*, *pure*): ○——————●

a. That is a completely secure vault.

b. # That is a slightly secure vault.

c. This is completely pure water.

d. # This is slightly pure water.

(137) Totally closed scale (*full*, *empty*): ●——————●

a. That is a completely full glass.

b. That is a partially full glass.

c. That is a completely empty glass.

d. That is a partially empty glass.

Part of an adjective's association with a semantic scale is its polarity: the direction in which it measures values on the scale. All of the adjectives listed above (with the exception of *empty*) measure positive intervals on the scale, i.e., intervals that start at the lower extremity and go up to some point. These adjectives all have polar opposites: negative adjectives that measure the complementary intervals starting at the upper extremity of the scale. A commonly applied test to determine which of two complementary gradable adjectives is positive and which is negative involves the use of measure phrases (Kennedy 1999). When felicitous, these can typically be used with positive-interval adjectives but not with negative-interval adjectives, as shown in (138).

(138) a. Bob is a 35-year-old man.

b. # Bob is a 35-year-young man.

As suggested by the scale structures presented in (133), the lower bound for an adjective measuring positive intervals will behave like an upper bound for its complementary adjective that measures negative intervals. For example, *pure*, which may felicitously be modified by *completely* but not by *slightly* as in (136c,d), has the polar opposite *impure*, which shows the opposite behavior with the adverbs: *slightly/#completely impure water*. For a given adjective, we must therefore know not only what type of scale it is associated with, but also what its polarity with respect to that scale is.

The combination of scale structure and polarity yields a four-way distinction among gradable adjectives. The classification is based on the type of interval measured by an adjective. Positive-interval adjectives associated with lower closed scales are thus grouped together with negative-interval adjectives associated with upper closed scales (both are minimum standard absolutes in the scheme below). In the terminology of Kennedy and McNally (2005) and Kennedy (2007), gradable adjectives associated with totally open scales are called RELATIVE adjectives, while those associated with any closed endpoint are ABSOLUTE adjectives. We may further distinguish three classes of absolute adjectives based on the position of the endpoint(s) in the interval measured by the adjective. The terms used below are likewise from Kennedy and McNally (2005) and Kennedy (2007) (with the exception of BIVALENT ABSOLUTE, which is novel to this study). The classification is shown in (139).

(139) a. RELATIVE ADJECTIVES: adjectives that measure intervals from an open extremity toward an open extremity, i.e., that are associated with open scales

b. MINIMUM STANDARD ABSOLUTE ADJECTIVES: adjectives that measure intervals from a bounded extremity toward an open extremity

c. MAXIMUM STANDARD ABSOLUTE ADJECTIVES: adjectives that measure intervals from an open extremity toward a bounded extremity

d. BIVALENT ABSOLUTE ADJECTIVES: adjectives that measure intervals from a bounded extremity toward a bounded extremity

As we will see below, these scale structure and polarity distinctions among gradable adjectives are correlated with distinctions in the behavior of gradable adjectives with respect to various interpretive phenomena. In particular, adjectives of the different classes have very different default standards of comparison associated with them when they occur in the positive degree. I discuss the positive standard behavior in the next subsection, before moving on to examine the significance of the classification for nominal AICs.

4.2.2 Default Standards for Positives

The standard of comparison associated with a gradable adjective in the positive degree depends on which of the four classes listed above the adjective belongs to. As Kennedy and McNally (2005) and Kennedy (2007) show, the standard of comparison for a relative adjective in the positive degree is always determined contextually, but the standard for an absolute adjective defaults to the closed endpoint of the scale it is associated with. For bivalent absolutes, whose scales are closed at both ends, the default is the endpoint "toward" which the interval measured by the adjective is headed, not the one it is heading "away" from. The default positive standards observed for adjectives of the various classes will be

of great importance in the discussion of nominal-AIC adjective acceptability below.

The value of default positive standards can be ascertained by comparing positive adjective constructions to their comparative counterparts. As shown in (140), comparatives license different entailments about related positives depending on the type of the gradable adjective. In these examples, a comparative sentence is used to reason about the validity of a positive one.

(140) a. Bob is taller than Susan. $\not\rightarrow$ Bob/Susan is tall.

b. The table is wetter than the floor. $\rightarrow$ The table is wet.

c. Bob's water is more pure than Susan's water. $\rightarrow$ Susan's water is not pure.

d. Susan's glass is fuller/emptier than Bob's. $\rightarrow$ Bob's glass is not full/empty.

In (140a), the relative adjective *tall* is used, and we are unable to determine from the comparative whether either Bob or Susan counts as tall according to the standard associated with the positive. This indicates that the positive standard is determined contextually for relative adjectives, and that there is no guarantee that either Bob or Susan exceeds it. With the minimum standard absolute adjective *wet* in (140b), by contrast, the comparative tells us that, at the very least, the table has a non-zero degree of wetness. That we are correspondingly able to infer that the table counts as wet according to the default positive standard indicates that the default standard for minimum standard absolutes like *wet* is the minimum amount of the gradable property in question. Similarly, with the maximum standard absolute adjective *pure* in (140c), the comparative tells us unambiguously that Susan's water is not completely pure; we can then safely conclude that it does not meet the default positive standard for maximum standard absolutes, which is the maximal degree

of the relevant gradable property. The bivalent absolute adjectives in (140d) behave just like the maximum standard absolutes, with the default standard the maximal amount of fullness for the positive-interval adjective *full* and the minimal amount of fullness for the negative-interval adjective *empty*.

The default positive standards seen in (140) are closely tied to the structure of the scales associated with the relevant adjectives. Kennedy (2007) proposes a principle of "interpretive economy" that ensures that standards of comparison for positives are identified with the natural transitions characterized by bounded endpoints on a scale (if the scale in question is bounded), e.g., the transition from total dryness to minimal wetness or the transition from total purity to minimal impurity. As we have seen above in chapter 2, however, the inappropriateness interpretation of nominal AICs—and, thus, our ability to identify sentences as nominal AICs—depends on the ability of the infinitival clause to influence the positive standard of comparison. Nominal AICs thus provide a useful testing ground for Kennedy's interpretive economy, as this principle makes predictions about the acceptability of the various types of absolute adjectives in the construction. As I discuss in the next section, the behavior of absolute adjectives in nominal AICs does not conform entirely to these predictions, and the data therefore spur us to take a closer look at the nature of interpretive economy.

4.3 Scales and Standard Identification

In this section I consider the significance of the scale typology discussed above for our earlier puzzle about adjective acceptability in nominal AICs. As I show here, an adjective's

ability to occur in nominal AICs is entirely predictable from its scale type and polarity. At the same time, the nominal-AIC data are partially at variance with Kennedy's (2007) analysis of the role of defaults in determining standards for positives, as nominal AICs permit the manipulation of positive standards for a subset of absolute adjectives. This forces us to propose revisions to Kennedy's principle of interpretive economy; while the basic framework can be maintained, the nominal-AIC data suggest that we must look beyond scalar endpoints and consider the substance of scales in order to account for the determination of positive standards.

4.3.1 The Adjectival Typology of Nominal AICs

As we saw above in the examples in (132), not all gradable adjectives are permissible in nominal AICs. What was presented above as a puzzle can now be straightforwardly accounted for with reference to the semantic scale typology discussed in section 4.2. In order to be used in a nominal AIC, a gradable adjective must not be associated with a scale that has only a maximum endpoint; i.e., it cannot be a maximum standard absolute adjective. In this section I present the data that lead to this generalization, before moving on to discuss its theoretical significance in the next section.

The combination of scale structure and polarity discussed in section 4.2 yields a four-way distinction among gradable adjectives: relative, minimum standard absolute, maximum standard absolute, and bivalent absolute. In (141) through (144) I list several adjectives of each type and consider the acceptability of nominal AICs that contain them.

(141) Relative: *long*, *short*, *old*, *young*

a. *Middlemarch* is a long book to assign.

b. Bob is a short guy for the Lakers to draft.

c. That is an old car to drive across the country.

d. Susan is a young person to be in charge of such a large company.

(142) Minimum standard absolute: *wet*, *crooked*, *dirty*, *bumpy*

a. That is a wet football to use in an NFL game.

b. That is a crooked branch to hang a swing from.

c. Those are dirty pants for Bob to wear to dinner.

d. That is a bumpy road to drive so fast on.

(143) Maximum standard absolute: *dry*, *straight*, *clean*, *flat*

a. # That is a dry sponge to clean the counter with.

b. # That is a straight piece of wood to use as a bow.

c. # Those are clean plants for Bob to paint the house in.

d. # That is a flat surface to trip and fall on.

(144) Bivalent absolute: *full*, *empty*, *opaque*, *transparent*

a. That is a full glass to give to a little kid.

b. ? That is an empty auditorium to give a speech in.

c. That is an opaque piece of glass to use for your windshield.

d. ? That is a transparent cloth to hang in your bedroom doorway.

The examples in (141) and (142) show that relative adjectives and minimum standard absolute adjectives may be used felicitously in nominal AICs. This is to be expected for relative adjectives: as relatives have no default positive standards associated with them, the infinitival clause is free to influence the determination of the standard. Interpretive economy does not interfere with the overt determination of the standard, as no standard is conventionally associated with adjectives of this class. The behavior of the minimum standard absolutes in (142) is more noteworthy, as the infinitival clauses are able to influence the standards for these adjectives despite their being associated with a default positive standard: the minimum endpoint of the scale. In all of the examples in (142), it is possible for the standard of comparison, under the influence of the infinitival clause, to be much greater than the minimal non-zero amount of the gradable property in question. There is no contradiction in saying, for example, *The football is slightly wet, but I wouldn't say that it's a wet football to use in a game.* This is an important fact that will be discussed further below.

The maximum standard absolute adjectives in (143) are uniformly unacceptable in nominal AICs.[3] As discussed above in section 4.2, the default standard for a maximum standard absolute adjective in the positive degree is the maximal amount of the gradable property in question. The unacceptability of the nominal AICs in (143), it seems, is a result of the infinitival clauses' being unable to influence the standard of comparison. That is, interpretive economy appears to require the positive standard for a maximum standard

[3]They become much better with the addition of an adverb like *awfully*. Note, though, that such an addition may also cause the default positive standard to shift away from the maximal amount of the relevant gradable property. If we say *That's an awfully dry sponge*, it may be the case that the sponge is not completely dry. As I am interested in the interaction between the infinitival relative and the default positive standard, I will ignore examples with such default-altering adverbs here.

absolute to be determined by the conventional meaning of the adjective, and not to be influenced by any overt phrasal material. In (143a), for example, we understand the sponge to have the maximal degree of dryness, i.e., to be completely dry; the infinitival clause is unable to reset the standard to a lower value on the scale and thus has no influence on the determination of the standard. This in turn explains the absence of the typical nominal-AIC inappropriateness reading in the examples in (143): as the standard is simply the maximal amount of the gradable property in question, the infinitival clause plays no role in determining the standard, and as a result the inappropriateness reading is unable to arise. The role of conventional meaning—i.e., the matter of whether or not the default positive standard must be maintained—is thus not the same with maximum standard absolutes as it is with minimum standard absolutes.

Finally, the bivalent absolute adjectives in (144) show a mixed pattern of acceptability. The examples in (144a,c) are fully acceptable nominal AICs, while those in (144b,d) are somewhat more awkward, but still not as bad as the maximum standard absolute cases in (143). Bivalent absolutes are those whose associated scales have both a minimum and a maximum endpoint. While it is perhaps not surprising, given the correspondence between scale structure and acceptability adduced so far, that bivalent absolutes show an overall level of acceptability that falls in between those of minimum and maximum standard absolutes, the nature of the acceptable nominal-AIC interpretations with bivalent absolutes is quite telling. The standard of comparison in a nominal AIC with a bivalent absolute adjective is greater than the minimal non-zero amount of the relevant gradable property, but not as great as the maximal amount. We can say, without contradiction, *That's a full glass to give*

to a little kid, but it's not a full glass; the fact that the nominal AIC is compatible with the negation of the ordinary positive with *full*—for which the standard is the maximal amount of fullness—shows that the nominal-AIC standard is lower than the maximum value on the scale. At the same time, the standard may be significantly greater than the minimal non-zero amount of fullness; i.e., we may judge our *full glass* nominal AIC false in a situation where the glass in question contains only a few drops of liquid. Nominal AICs with bivalent absolutes behave like those with minimum standard absolutes, inasmuch as they allow the infinitival clause to set the standard higher than the default associated with a minimum endpoint. They differ from maximum standard absolutes in allowing the infinitival clause to trump convention (i.e., the maximal default) in determining the positive standard of comparison. With the infinitival clause able to influence the computation of the standard, the examples in (144) take on the characteristic nominal-AIC inappropriateness reading. This is true for the more awkward examples in (144b,d), as well: in those cases, the standard corresponds to a non-minimal and non-maximal degree of emptiness or transparency. The role of interpretive economy is thus rather difficult to state for bivalent absolutes. The examples in (144) behave as if the semantics is able to "see" only the minimum endpoint of the scale, as in minimum standard absolutes, while ignoring the maximum endpoint that causes problems for nominal AICs that contain maximum standard absolutes.

To summarize the results for the different adjective types in nominal AICs, we may say that a gradable adjective is acceptable in a nominal AIC—that is, the infinitival clause is able to effect the domain restriction that influences the computation of the standard and yields the inappropriateness interpretation—as long as its associated scale does not contain

only a maximum endpoint. From the data in (141) through (144), it seems that adjectives are acceptable in nominal AICs provided their associated scales contain either a minimum endpoint or no endpoints at all. Inelegantly disjunctive though this generalization is, I believe that a reasonable account of it can be formulated by considering the nature of the gradable properties involved and the concept of "natural transitions" along scales discussed by Kennedy (2007). I turn to a discussion of these issues in the next section.

4.3.2 Presence vs. Absence

The behavior of the different adjective classes in nominal AICs, I propose, is reducible to the difference between something and nothing. The infinitival clause of a nominal AIC is able to alter the standard of comparison, and thereby give rise to the inappropriateness interpretation, as long as the default positive standard for the absolute adjective is a non-zero amount of the gradable trait in question. For a given absolute adjective, the value of the default positive standard depends on the adjective's orientation with respect to the zero-endpoint of its associated scale, i.e., on its polarity. The differences in nominal-AIC acceptability observed above are correlated with adjectival polarity both for scales closed only at one end and for scales closed at both ends. For an adequate account of the relationship between convention (or default) and context in the determination of positive standards, we must therefore look beyond scalar endpoints themselves and consider how particular adjectives are related to their associated scales and their endpoints. Only by doing so can we provide an empirically satisfactory account of the convention–context interaction and of adjective acceptability in nominal AICs.

I begin with scales that are closed only at one end. As discussed above in section

4.2, these are associated with minimum standard absolute and maximum standard absolute adjectives. The lone endpoint of a scale that is closed only at one end marks the boundary between the total absence of the scale's gradable trait and a minimal non-zero amount of it. For example, on the scale of moisture, the single endpoint corresponds to the boundary between the total lack of moisture and a minimal amount of moisture, i.e., the boundary between being (completely) dry and being (slightly) wet. This boundary is, in the terminology of Kennedy (2007), a "natural transition" along the scale in question, and as such it is a highly salient point and a good candidate to serve as a positive standard of comparison. The nominal-AIC data in section 4.3.1, however, suggest strongly that one's orientation along the scale—i.e., the polarity of the adjective associated with the scale, *wet* vs. *dry*—has a great effect on the salience of the natural transition point. It seems that the infinitival clause of a nominal AIC can be used to compute a different standard if the transition point is "behind us," as it is with the minimum standard absolute *wet*, rather than "ahead of us," as it would be with the maximum standard absolute *dry*.

This difference reflects a very basic semantic disparity between adjectives of the two polarities and the default standards associated with them in the positive degree. A minimum standard absolute adjective measures the gradable property or trait associated with the scale in question. For example, the minimum standard absolute *wet* measures the amount of moistness of an object: the greater the moistness, the greater the degree to which we describe it as wet. By contrast, a maximum standard absolute adjective measures the absence of the gradable trait in question. The maximum standard absolute *dry* measures the degree to which moistness is absent from an object: the greater the absence of moistness,

the greater the degree to which we describe it as dry. Because the minimum standard absolute measures the presence of the gradable property, and not its absence, the natural transition point—the closed endpoint of the scale—is the point above which any object can be described by such an adjective. If an object has any degree of moistness, we can call it wet. For the maximum standard absolute, which measures the absence of the gradable property, the natural transition point is the first and only point at which an object can be reliably described by such an adjective. Put differently, it is natural to talk about the presence of a trait no matter what the amount, but it is most natural to speak of absence only when the absence in question is total. Adjectives of the two polarities, though they are intimately tied to one another and exhibit complementarity in comparative predications, thus bear fundamentally different relationships to the common semantic scale with which they are associated.

Closer consideration of the examples in (142) and (143) above reveals that this same presence vs. absence relationship holds for all of the relevant semantic scales and their associated adjectives. In each case, a minimum standard absolute adjective that measures the presence of a trait is paired with a maximum standard absolute adjective that measures its absence. The minimum standard absolute *crooked* measures the presence of bends or curves in an object's shape, while the maximum standard absolute *straight* measures the absence of bends or curves. The minimum standard absolute *dirty* measures the presence of dirt or stains on an object, while the maximum standard absolute *clean* measures their absence. And the minimum standard absolute *bumpy* measures the presence of peaks and valleys on a surface, while the maximum standard absolute *flat* measures the absence of

such features. There is thus a general correlation between minimum standard absolutes and the presence of the gradable trait described by the associated semantic scale, and between maximum standard absolutes and its absence.

The question we must address is why the presence vs. absence distinction is treated the way it is in positives. Presence and absence, of course, are complementary notions, and it is certainly possible, and often pragmatically quite useful, to talk about degrees of absence, particularly when comparing two objects: *This shirt is cleaner than that one*, and so on. In positives, however, we are concerned only with one object (or set of objects, if the matrix subject is plural or generic). If the amount of the relevant gradable property associated with this lone object is anything greater than zero, then it is most natural, I suggest, to focus on the presence of the characteristic measured by the scale in question, rather than on its absence.[4] If an object possesses some amount of dirt or soil, then it is natural (or, perhaps, "unmarked") to use the gradable adjective that tracks the presence of this characteristic: the minimum standard absolute *dirty*. If this is the case, then the maximum standard absolute *clean* will typically be used only when the lone object in question is totally free of dirt. This pattern of usage, of course, means that the natural transition between presence and absence of the relevant trait will be used as the standard of comparison for positives, with polarity determining whether or not the natural transition marks minimal presence or complete absence.

The nominal-AIC data from section 4.3.1 show, however, that the standard of comparison can be shifted from the natural transition point in certain cases. By considering these data in the light of the presence vs. absence discussion above, the conditions on shifting

[4]Cf. Horn's (1989:ch. 3) discussion of the markedness of negation relative to affirmation.

the standard for positives become clearer. The standard for a positive can be shifted by the infinitival clause of a nominal AIC if the adjective in question measures the presence of the gradable trait characterized by the associated semantic scale; the standard cannot be shifted if the adjective measures the absence of the trait. Given the location of the natural transition point at the lower end of the scale, any shift in the standard of comparison must place the standard at a point higher than the natural transition. It cannot place it at a lower point, as there is no point on the scale below the minimum endpoint. A shift of the standard therefore must place it at a point that represents the presence of some amount of the gradable trait in question. As argued above, in such a situation it is most natural, in a positive predication that considers only one object, to use the adjective that measures the presence of the gradable trait, namely the minimum standard absolute adjective. If we maintain the assumption that it is most natural in such a situation to speak of absence only if the absence is total, then the maximum standard absolute adjective should be far more awkward when the standard of comparison has been shifted from the natural transition point, as it is impossible in such a situation for the shifted standard to correspond to a total absence of the trait in question.

The implications for nominal-AIC acceptability should now be clear. As we have seen in chapter 2, the inappropriateness interpretation that characterizes nominal AICs arises via the influence of the infinitival clause on the standard of comparison. For adjectives associated with a scale that is closed at one end—i.e., minimum and maximum standard absolute adjectives—the only way in which a nominal-AIC infinitival clause can alter the default standard of comparison, which is located at the natural transition point, is by shift-

ing it upward. Such an upward-shifted standard will, by definition, measure some positive amount of the gradable trait in question, and it will therefore be most naturally associated with the adjective that measures the presence of this trait: the minimum standard absolute adjective. Nominal AICs containing minimum standard absolutes are thus systematically acceptable, as shown in (142). Nominal AICs containing maximum standard absolute adjectives, by contrast, are unacceptable: their adjectives measure the absence of the relevant trait, but the infinitival clause shifts the standard away from total absence. The contrast in acceptability for nominal AICs containing minimum and maximum standard absolute adjectives shown above in (142) and (143) is thus readily accounted for. This is not to say that the sentences with maximum standard absolutes shown in (143) have no available interpretation. What is important for us is that they lack the nominal-AIC inappropriateness interpretation, as this interpretation depends on a shift in the standard that the adjective cannot tolerate.

The data discussed thus far leave open the possibility of an alternative characterization of adjective acceptability in nominal AICs, one that makes reference to the interpretation of attributive positives without nominal-AIC infinitival clauses. This alternative characterization is as follows: absolute adjectives are acceptable in nominal AICs as long as the degree comparison specified by the nominal AIC entails the truth of that specified by the corresponding ordinary attributive positive. Consider example (142a), *That is a wet football to use in an NFL game.* In this sentence, the standard of comparison is shifted upward from the natural transition at the lower end of the scale, and the comparison relation specified by POS_{attr} says that the ball in question significantly exceeds the new standard of moistness.

Any such ball, however, also necessarily exceeds the default standard associated with the minimum standard absolute *wet*. That is, sentence (142a), with its nominal-AIC infinitival clause, entails the truth of its unadorned counterpart, *That is a wet football*, as the latter is true as long as the football in question has a minimal degree of moistness. This same entailment relation does not hold, however, for examples that contain maximum standard absolutes like *dry*. If we shift the standard of moistness upward from the natural transition, as in sentence (143a), then we no longer guarantee the truth of the ordinary attributive positive, *That is a dry sponge*. The standard for the latter sentence is the natural transition, namely the total absence of moistness. A shifted standard, however, will correspond to a non-total absence of moistness, and so the intersentential entailment fails in this case. Setting aside the question of how this relationship should be stated in the grammar, we may legitimately wonder whether this is the proper way to characterize the acceptability of absolute adjectives in nominal AICs.

Evidence that it is indeed the presence vs. absence distinction that is crucial for nominal-AIC acceptability, and not the intersentential entailment relation described immediately above, comes from the behavior of bivalent absolute adjectives. These are associated with scales that are closed at both ends, i.e., scales that have both minimum and maximum endpoints. Such scales have two natural transition points: roughly, the point that marks the transition between nothing and something, and the point that marks the transition between something and everything. The default standard associated with an ordinary attributive positive will be one or the other of these natural transitions, depending on the polarity of the adjective. The examples above in (144) show that, for certain bivalent absolutes, the

standard of comparison may be shifted away from its natural transition by a nominal-AIC infinitival clause while maintaining acceptability. Example (144a), *That is a full glass to give to a little kid*, with its shifted standard, does not entail the truth of its unadorned attributive positive counterpart, *That is a full glass*, which has the default maximum standard. It is nonetheless an acceptable nominal AIC. The intersentential entailment theory of adjective acceptability in nominal AICs is thus unable to account for bivalent absolute adjectives.

A closer look at (144) reveals that the acceptability of bivalent absolutes in nominal AICs is correlated with the presence vs. absence of the gradable trait described by the semantic scale, just as we saw above with minimum and maximum standard absolutes. Despite the presence of the additional natural transition, bivalent absolutes behave like minimum and maximum standard absolutes in being sensitive only to the transition from nothing to something when it comes to shifts in the standard of comparison. Consider the bivalent absolute adjectives *full* and *empty*. *Full* measures the presence of material inside a container, while *empty* measures the absence of such material. Correspondingly, the nominal AIC in (144a) with the bivalent absolute that measures presence, *full*, is acceptable, while the nominal AIC in (144b) with the bivalent absolute that measures absence, *empty*, is more awkward. The same pattern holds for the bivalent absolutes *opaque* and *transparent* in (144c,d): *opaque* measures the presence of visual obstructions in an object and is acceptable in the nominal AIC, while *transparent* measures the absence of such obstructions and is more awkward. In all of these cases, the nominal-AIC standard of comparison, under the influence of the infinitival clause, is shifted away from the natural transitions at the ends

of the scale. It therefore represents the presence of some positive amount of the relevant gradable trait; as a result, we are able to use the adjective that measures presence but not the one that measures absence, just as we were above with minimum and maximum standard absolutes. What is crucial here is the fact that we are able to make nominal AICs from bivalent absolutes that measure presence—*full* and *opaque*—despite the fact that, in ordinary attributive positives, these adjectives are associated with default standards at the maximum endpoints of the relevant scales.

It thus appears that the presence vs. absence distinction is of primary importance in determining positive standards of comparison. Natural transitions are influential only insofar as they track the presence vs. absence distinction. Nominal AICs show us that positive standards may be modified by overt material, provided the modification does not run afoul of the relevant adjective's status with respect to presence vs. absence.

Two further points are in order. First, with so much riding on the presence vs. absence distinction, and in light of the complementarity of presence and absence noted above, we must have some independent means of determining what counts as presence for a given scale. If we are free to choose what counts as presence and to make its inverse absence, then the analysis is obviously devoid of explanatory power. In order for an independent determination to be possible, I believe that we must view the presence vs. absence distinction not as a matter of language or grammar, but rather as a fact about the world. From this perspective, I believe there is a ready method of determining which of two complementary gradable notions should be identified with presence in a given instance. The notion identified with presence is the one with a direct physical correlate that can be sensed: it is tangible,

visible, or otherwise available to the senses. It is typically perceived as an independent physical entity that is a proximate cause of the relevant gradable trait. For the scale that relates the polar opposites *wet* and *dry*, there is a tangible entity that is the proximate cause of wetness: liquid. Liquids can be measured and divided into arbitrarily small amounts, they are independent entities with their own physical presence, and they cause other objects to become wet when they come into contact with them. It is the presence of liquid that makes something wet, and the absence of liquid that makes something dry. Dryness, for its part, can also be physically sensed. Unlike with wetness, though, there is no independent physical entity that causes dryness by coming into contact with other objects and that can be manipulated and divided and touched independently. Rather, when we sense dryness, we sense it as the absence of wetness. The presence vs. absence distinction thus has a solid physical motivation in the case of these two adjectives, with *wet* measuring presence and *dry* measuring absence.

The other adjective pairs noted above have similarly strong physical correlates of presence. For *dirty* and *clean*, the physical correlate is dirt or soil itself; for *bumpy* and *flat*, it is mounds or depressions in a surface, which are perceived as independent entities in a way that unbroken flatness is not; for *full* and *empty*, it is the physical material that fills a container; for *opaque* and *transparent*, it is the stains, marks, or imperfections in an object that inhibit one's ability to see through it. The physical correlate of presence in the *crooked* vs. *straight* contrast is perhaps more abstract than in the other cases considered here, but it is nonetheless a reasonable one: bends in an oblong object are perceived as independent entities in much the same way as bumps on a surface, whereas unbroken straightness is not

so perceived. In all of these cases, there is thus a straightforward physical motivation for determining which of the complementary notions associated with a scale is the one that measures presence, and which is the one that measures absence. To be sure, these notions are linguistically represented—e.g., via the degree-based semantics discussed in chapter 2—but the calculus of presence vs. absence needed to explain the nominal-AIC data seems to require an appeal to these more basic facts about the world (or, perhaps better, facts about our extralinguistic perception of the world).

Second, it should be noted that the infinitival clauses of nominal AICs, in their capacity as standard shifters, cannot be treated as "slack regulators" in the sense of Lasersohn (1999). That is, we cannot regard nominal AICs that contain absolute adjectives, and whose standards of comparison are correspondingly shifted from their default locations, as "loose" attributive positives that make use of less stringently defined default standards. The reason for this is that if such an explanation were available for the acceptability of minimum standard absolutes in nominal AICs—i.e., if the upward-shifted standard were treated simply as the 'bare minimum' standard associated with the adjective by default, but viewed from a looser or more coarse-grained perspective—then we would be unable to explain why the same effect is unavailable for maximum standard absolutes. Such an analysis would treat the shifted standard as the natural transition itself, and the natural transition is, by definition, the same for adjectives of both polarities.[5] Nominal-AIC infinitival clauses are thus

[5]Consider, by way of comparison, the behavior of *for* phrases, which allow manipulation of the standard for both presence- and absence-measuring adjectives and thus might be amenable to a slack regulation account:

i. This room is dirty for a kitchen.

ii. This room is clean for an artist's studio.

something quite different from Lasersohn's slack regulators.

I conclude that the presence vs. absence distinction—a distinction not appealed to in other accounts of linguistic gradability, to the best of my knowledge—is of great utility in accounting for the behavior of absolute gradable adjectives in nominal AICs. I now turn to a consideration of what this means for the interaction between convention and context in the determination of standards for positives.

4.3.3 Interpretive Economy

The behavior of absolute adjectives in nominal AICs is of great importance for our understanding of the roles of convention and context in the determination of positive standards of comparison. In particular, nominal AICs shed new light on the notion of the conventional in absolute-adjective interpretation, and in turn on its interaction with contextual factors. Broadly speaking, the nominal-AIC data support the principle of interpretive economy proposed by Kennedy (2007:36), which requires that we "maximize the contribution of the conventional meanings of the elements of a sentence to the computation of its truth conditions." For positive standards, the effect of this directive is to limit the ability of contextual factors to influence the default standards of comparison associated with absolute adjectives. As we have seen above, however, the way in which we define the "conventional meanings" of absolute adjectives cannot simply involve their interpretation in ordinary, unadorned positives. To describe the conventional properly, we must make reference not only to scale structure and natural transitions, but also to scale substance and the presence vs. absence distinction.

The usefulness of nominal AICs as a tool for investigating the convention–context inter-

action lies in their overt provision of a contextual influence on the standard of comparison. The infinitival clause of a nominal AIC, as demonstrated above in chapter 2, influences the standard in such a way as to produce the construction's characteristic inappropriateness interpretation. Though expressed overtly, it is a contextual element that has nothing, in and of itself, to do with the adjective's semantic scale or its internal structure. It is thus highly instructive to observe the ways in which nominal-AIC infinitival clauses interact with different scale structures to determine standards of comparison, as this provides a particularly clear picture of the interaction between convention and context.

The major implication of the nominal-AIC data for interpretive economy is the following: we must invoke the notion of presence vs. absence when talking about the conventional meaning of gradable adjectives whose scales are closed at one or both ends. An ingredient of the conventional meaning must be that positive standards located at natural transitions can be associated with both presence-measuring and absence-measuring adjectives, while positive standards located at other points are best associated only with presence-measuring adjectives. This differs in an important respect from Kennedy's proposal. Kennedy (2007:36) writes that for positives, interpretive economy "ensure[s] that closed scale adjectives are absolute." What the nominal-AIC data suggest instead is that interpretive economy ensures only that closed-scale absence-measuring adjectives are absolute. The more general proposal made by Kennedy holds only in cases where, in addition to there being a natural transition associated with the scale, the standard is not shifted away from the natural transition point by a contextual element like a nominal-AIC infinitival clause. This effect is most readily apparent in a construction, like the nominal AIC, that brings overt contextual

influences to bear on the positive standard of comparison.

The effect of interpretive economy, I claim, is thus not to fix the positive standard of comparison at a natural transition; rather, it is to bar absence-measuring adjectives from being used in positives whose standards have been shifted away from the natural transition. The ultimate basis for this restriction is the ontological primacy of presence and the relative markedness of absence, which leads to a preference for presence-measuring adjectives when the positive standard of comparison is a non-zero amount of the gradable property in question.

The behavior of absolute adjectives in nominal AICs thus provides support for the overall framework advanced by Kennedy, as it affirms the priority of convention over context in the determination of standards for positives. I hope to have shown, however, that convention in this case is more than just a matter of natural transitions. Instead, convention involves a more complex relationship between natural transitions themselves and the presence vs. absence distinction with which they are correlated. When the latter is taken into account, we gain the ability to explain the behavior of minimum standard, maximum standard, and bivalent absolute adjectives in nominal AICs.

4.4 Summary

In this chapter we have examined adjective acceptability in nominal AICs and shown how it is correlated with scale structure. In addition to the descriptive utility of the generalization they yield, the data considered in section 4.3.1 provide new insight into the relationship between conventional meaning and contextual influence in the determination

of positive standards. In particular, they suggest an important revision to Kennedy's interpretive economy principle, one that makes convention dependent not only on scale structure, but also on scale substance.

Chapter 5

Conclusion

5.1 Summary and Assessment of Findings

We are now in a good position to assess the relationship between nominal and clausal AICs. Alongside the diverse syntactic and semantic criteria used to distinguish the two constructions in chapter 1, we can now consider each type of AIC's underlying syntactic structure and semantic composition in our comparison. Moreover, we now have a concrete formal basis for considering the different "modification" relationships of the adjective in the two constructions. The picture that emerges is one in which the difference between nominal and clausal AICs is due to a combination of lexical and syntactic factors, specifically to adjectival subcategorization and the merge position of the infinitival relative clause.

I begin with a summary and assessment of the various adjectival restrictions that have been observed for the two types of AIC above. (i) To occur in an AIC (nominal or clausal), an adjective must be gradable (chapter 1); (ii) to occur in a clausal AIC, an adjective must independently select an infinitival-clause external argument (chapter 3); (iii) to occur in a

nominal AIC, an adjective must not be an absence-measuring absolute gradable adjective (maximum standard absolute or absence-measuring bivalent absolute; chapter 4); (iv) any clausal-AIC adjective that satisfies condition (iii) may also occur in nominal AICs (chapter 1). Condition (i) is intimately tied to the fact that both nominal and clausal AICs are comparison constructions. Condition (ii) derives from the syntactic structure of clausal AICs, to be discussed further below. Condition (iii) appears to be a pragmatic restriction stemming from an extralinguistic bias in our perception of presence vs. absence. Condition (iv) is, as far as I can tell, simply a brute fact about adjectival subcategorization, though one that may suggest something deeper about the nature of modification and evaluation as expressed by adjectives in English.

The syntactic structures of nominal and clausal AICs reflect the fact that clausal-AIC adjectives select infinitival-clause arguments while nominal-AIC adjectives do not. Clausal-AIC infinitival clauses merge within the adjectival projection, while nominal-AIC infinitival clauses merge as adjuncts to NP. The fact that both constructions look the same on the surface is, I claim, an accident, a consequence of the fact that there are multiple positions at which an infinitival clause can initially merge into the structure of the sentence, and of the fact that subsequent movement operations may obscure this underlying difference. This is, of course, a claim that should be tested against AICs or AIC-like constructions in other languages; crosslinguistic investigation of AICs is something that must await future research.

On the semantic side, the principal difference between nominal and clausal AICs involves the stuff of comparison. At an appropriate level of abstraction, the two constructions

are quite similar. Both types of AIC are gradable adjective constructions in the positive degree. Thus, they both express essentially the same predicate, stating that the gradable-scale value associated with the matrix subject significantly exceeds a contextually relevant standard of comparison. In both cases, this standard is computed by considering only those entities that belong to the category denoted by the NP. The major difference between the two constructions—aside from the matter of whether the infinitival clause constitutes part of the NP denotation and thereby restricts the input to the standard-identification function, or instead forms the relevant gradable property in combination with the adjective—is that in nominal AICs the comparison in question makes reference to a scale of degrees, while in clausal AICs it makes reference to a partially ordered set of worlds.

The degree-vs.-world difference is the formal correlate of the modification distinction discussed in chapter 1, i.e., the matter of whether the adjective modifies the noun or the infinitival clause. We now see that "modification of the noun" need not in fact involve the adjective taking the noun as its argument; it does not do so in the nominal-AIC semantics proposed in chapter 2. Instead, a nominal-AIC adjective associates the matrix subject with a degree on a scale and compares it to a standard computed with the help of the noun. What makes nominal AICs different from clausal AICs is not that nominal-AIC adjectives modify the noun in any meaningful way, but rather that they fail to modify (i.e., take as their argument) the infinitival clause. As shown in the analysis in chapter 3, clausal-AIC adjectives take the infinitival relative clause as their argument. Much like nominal-AIC adjectives, they then associate the matrix subject with a value. In this case, however, the value is determined by saturating the infinitival relative clause with the matrix subject and

assessing the compatibility of the resulting proposition with the set of ideal propositions specified by the adjective (i.e., the ordering source). This is achieved formally by comparing worlds in a partially ordered set. Clausal-AIC adjectives thus "modify the infinitival clause" by making use of the infinitival clause, in combination with the matrix subject, to specify a proposition that can be used to effect a world comparison.

In the semantics as in the surface syntax, nominal and clausal AICs thus share a similar overall shape; the differences are, so to speak, in the details. With this approach to AICs, in which both types of AIC are viewed simply as positive gradable-adjective constructions, we have been able to rely on tools developed independently for the analysis of degree comparison (Kennedy 1999, 2007) and world comparison (Kratzer 1981, 1991). The only novelties in the semantics for AICs developed above (and specified in the appendix) are the lexical entries for POS_{attr} and $\text{POS}^{claus}_{attr}$, along with the notion that clausal-AIC adjectives like *good* pick out, for the proposition p built from their infinitival-relative argument and the matrix subject, the p-world most compatible with the ideal that they specify. This is, of course, the world-comparison analogue of gradable adjectives' picking out the maximal relevant degree on a scale (von Stechow 1984; Rullmann 1995). Moreover, the world-comparison approach to clausal-AIC semantics, according to which the adjective specifies a modal ordering source, extends naturally to cover the full range of adjectives that may occur in the construction. Though I have used only the adjective *good* in my demonstration of the clausal-AIC analysis in chapter 3, the analysis accommodates any adjective that picks out a set of propositions: *good* picks out the set of propositions that are good, which, for a world w, serves as the ordering source $\text{GOOD}(w)$; *irritating* picks out the set of propositions that

are irritating, yielding the ordering source IRRITATING(w); and so on. For both nominal AICs and clausal AICs, the analyses presented here capture the interpretive details while allowing the appropriate range of adjectival variation.

Finally, at the most basic descriptive level, a major contribution of the dissertation has been to identify nominal AICs as a construction of English and to provide a description and analysis of them. As I mentioned in chapter 1, I am aware of no previous study that contains an analysis of nominal AICs; Berman (1974a) mentions the existence of the nominal-AIC reading in her study of clausal AICs, but does not analyze it in any detail. In this way, the dissertation serves not only as a contribution to the literature on adjectival gradability and modality, but also as an addition to the descriptive grammar of English.

5.2 Issues for Future Research

AICs present myriad analytical challenges, all the more so because of the often subtle ways in which they differ from other adjective constructions to which they appear closely related. There are several important issues in the grammar of AICs that I have been unable to address fully in this dissertation: chief among them are the relationship between clausal AICs and the *tough* construction, the broader issue of the relationship between attributive and predicative adjectives in English, the restricted distributions of nominal- and clausal-AIC DPs, and the interpretation of AICs in different tenses. Here I briefly summarize these issues, to which I hope to return in future work.

As mentioned in chapter 1, there are small but important differences between clausal AICs and the *tough* construction. The *tough* construction is more limited than clausal AICs

in the range of adjectives it permits and in their thematic relationship to the infinitival clause: in general, *tough* infinitival relatives require a non-subject gap and forbid expletive or other non-thematic subjects in the infinitival clause, restrictions which are absent from clausal AICs. As noted above, however, clausal AICs that contain *tough*-construction adjectives inherit the non-subject gap restriction: consider the unacceptability of *#Bob is a tough guy to impress the audience*. This suggests that the differences between the two constructions could be due, at least in part, to lexical properties of the adjectives involved. Indeed, the meaning of many *tough*-construction adjectives seems to involve a purpose or goal, a natural telos that is absent from the interpretation of clausal-AIC adjectives such as *good* or *irritating*. Put differently, a state may be *good* or *irritating*, but a state cannot be *tough* or *easy*; such descriptions are valid only for endpoint-oriented processes. Note, though, that if this explanation is on the right track, the presence of a natural purpose or goal must not be a necessary condition for an adjective's participating in the *tough* construction, as *good* is a perfectly acceptable *tough*-construction adjective: *That is good to know*. The *tough* construction, of course, has proven notoriously difficult for both syntactic and semantic analysis. I believe that a more thorough comparison of *tough*-construction and clausal-AIC adjectives, and the associated thematic restrictions they bring to bear, could help to shed light on both sentence types.

Looming over the relationship between the *tough* construction and clausal AICs is the larger and more difficult matter of the relationship between attributive and predicative adjectives in English. As has been forcefully argued by Bolinger (1967) and later by Siegel (1976), there is a strong case to be made for treating the two classes of adjectives separately,

i.e., for rejecting the notion that one type of adjective is basic and the other syntactically derived from it. The relationship between clausal AICs and the *tough* construction appears to support this conclusion: it is difficult to imagine how the relevant syntactic operation could differentiate between *good*, which occurs felicitously in both constructions, and *odd*, which occurs only in clausal AICs. The analyses of nominal and clausal AICs presented here have been developed under the assumption that they are valid only for attributive uses of the adjectives in question; I do not intend for them to extend automatically to cover predicative uses (and indeed, they would overgenerate sentences if they did). Any future investigation of the relationship between clausal AICs and the *tough* construction must be framed against this larger issue in English grammar.

Another unresolved problem in the analysis of AICs, and one that could shed light on the nature of infinitival relative clauses more generally, is that of the distributions of nominal- and clausal-AIC DPs. I have argued in chapter 2 that nominal-AIC DPs, like other indefinite DPs that contain infinitival relative adjuncts, are limited to predicative positions. As noted in chapter 3, however, Huddleston and Pullum (2002) have observed that clausal-AIC DPs, while uniformly acceptable in predicative positions, are also acceptable in referential positions in cases where the adjective can be understood to modify not just the infinitival clause but also the noun. That is, the phenomenon of "modificational mismatch" described in chapter 1 appears to limit the distribution of those clausal-AIC DPs in which it is present, rendering their distribution identical to that of nominal-AIC DPs. More generally, the acceptability of clausal AICs, even in predicative positions, can vary with the degree of modificational mismatch. While *That is a smart sofa to buy* is

acceptable, some speakers reject examples like *That is a clever stone to put in the garden*, in which the semantic gulf between the adjective, *clever*, and the noun, *stone*, is particularly large. Of course, if clausal-AIC adjectives do not modify the noun, as argued in chapter 3, then such adjective–noun mismatches should be irrelevant for clausal-AIC acceptability; for speakers who accept clausal AICs like the *clever stone* example, this appears to be a valid analysis. Future work should explore more fully the interaction between adjective and noun in clausal AICs, in addition to addressing the larger issue of infinitival relatives and their effect on DP distribution.

Finally, I have observed at various points that past-tense AICs differ from their present-tense counterparts in licensing the inference that the situation described the infinitival clause has already come to pass. Whereas the present-tense nominal AIC *Middlemarch is a long book to assign* suggests that one ought not assign *Middlemarch*, the past-tense variant, *Middlemarch was a long book to assign*, presupposes that *Middlemarch* was in fact assigned (see section 2.2.4 for discussion). This is not to say that the inappropriateness interpretation is absent from past-tense nominal AICs. Even if it is presupposed that *Middlemarch* was assigned, one still gets the sense that it was inappropriate to do so. We can observe the same effect for past-tense clausal AICs: *Middlemarch was a good book to assign* suggests that *Middlemarch* was assigned. The source of this past–present disparity is unclear to me; that is, I am unsure of why the tense of the matrix verb should affect the interpretation of the embedded clause in the way that it does, and of why the effect should be the same in both types of AIC. This puzzle should spur further research into the semantics of tense in AICs.

The discussion in this section shows that there are many open and unresolved issues in the grammar of AICs. It is my hope and belief that the analysis of nominal and clausal AICs presented here can provide a solid foundation on which to base future work in this area.

Appendix:

A Grammar Fragment for AICs

A.1 Overview

Here I lay out the details of the grammar used in the dissertation. The semantics follows quite closely the system developed by Heim and Kratzer (1998), supplemented with worlds and degrees. My treatment of modality is essentially that of Kratzer (1991), while my treatment of degrees and gradability is due to Kennedy (1999). The only semantic novelties in the fragment presented below are the lexical entries for the Deg^0 heads POS_{attr} and $\text{POS}_{attr}^{claus}$. I ignore tense throughout.

Following Heim and Kratzer, I assume that the semantic component interprets logical forms generated by the syntax. I will have little to say about how these LFs are generated; my syntactic assumptions are consistent with many recent approaches within the Principles and Parameters framework. Basic requirements include no-more-than-binary branching and the existence of a movement operation that leaves traces.

A.2 The Fragment

A.2.1 Syntax

(1) Types:

a. e, t, s, and d are types.

b. If σ and τ are types, then $\langle\sigma,\tau\rangle$ is a type.

c. Nothing else is a type.

(2) Notational conventions:

a. Parentheses are left-associative: $\alpha(\beta)(\gamma) = (\alpha(\beta))(\gamma)$

b. Embedded angle brackets and commas are dropped in complex type representations when no confusion will result: $\langle\langle\sigma,\tau\rangle,\upsilon\rangle = \langle\sigma\tau,\upsilon\rangle$

c. Predicate constants (type $\langle s,et\rangle$) and measure-function constants (type $\langle s,ed\rangle$) are written in boldface: **book**, **long**, etc.

d. Individual constants are written as lower-case boldface initials: **m** for Middlemarch, **e** for Emma, etc.

e. Variables are subscripted with their type on their first occurrence in an expression: x_σ is a variable of type σ.

A.2.2 Semantics

(3) Domains:

a. The domain of terms of type e is D_e, the set of individuals.

b. The domain of terms of type t is $\mathrm{D}_t = \{0,1\}$, the set of truth values.

c. The domain of terms of type s is D_s, the set of worlds.

d. The domain of terms of type d is D_d, the set of degrees.

e. The domain of terms of type $\langle\sigma,\tau\rangle$ is $\mathrm{D}_{\langle\sigma,\tau\rangle}$, the set of functions from elements of D_σ to elements of D_τ.

(4) Interpretation:

a. $[\![\cdot]\!]$ is the interpretation function.

b. $[\![\alpha]\!]^{\mathcal{M},g}$ is the denotation of the linguistic expression α in the model $\mathcal{M}$ under the variable assignment g.

c. The denotation of a lexical item is specified in its lexical entry and is independent of the assignment function; examples:

i. $[\![book]\!]^{\mathcal{M}}$ = the function f such that $f(w)(x) = 1$ iff x is a book in world w (or, equivalently, the function f such that $w \in \lambda w'_s.f(w')(x)$ iff x is a book in w).

ii. $[\![long]\!]^{\mathcal{M}}$ = the function f such that $f(w)(x)$ = the degree of length associated with x in w.

iii. $[\![Middlemarch]\!]^{\mathcal{M}}$ = the individual named *Middlemarch*

d. Denotations may equivalently be expressed as terms of a predicate calculus:[1]

[1]I do not mean this as a way of hedging between direct and indirect methods of semantic interpretation; rather, I use the predicate calculus here for purposes of notational simplification. Our semantics does not rely in any crucial way on translation to an intermediate, predicate-logical meaning language. In practice, however, the denotations of the lexical items introduced below are of sufficient complexity that it makes sense to adopt the notation of such a language. If preferred, one may view this as a full-blown feature of the semantics, with a translation function, $\rightsquigarrow$, turning lexical items into expressions of the predicate logic that are then interpreted by the interpretation function, $[\![\cdot]\!]$: *book* $\rightsquigarrow$ $[\![\lambda w_s \lambda x_e.\mathbf{book}(w)(x)]\!]^{\mathcal{M}}$ = the function f such that $f(w)(x) = 1$ iff x is a book in world w. It is important to keep in mind, however, that no information is added in the translation step; I will continue to use the interpretation function directly on lexical items, and to

i. $[\![book]\!]^{\mathcal{M}} = \lambda w_s \lambda x_e.\mathbf{book}(w)(x) \in \mathrm{D}_{\langle s,et\rangle}$

ii. $[\![long]\!]^{\mathcal{M}} = \lambda w_s \lambda x_e.\mathbf{long}(w)(x) \in \mathrm{D}_{\langle s,ed\rangle}$

iii. $[\![Middlemarch]\!]^{\mathcal{M}} = \mathbf{m} \in \mathrm{D}_e$

e. The predicate calculus contains the ordinary propositional connectives, quantifiers, lambda abstractor, and definite description operator (cf. the definitions in Gamut 1991):

i. $\neg p = 1$ iff $p = 0$

ii. $p \wedge q = 1$ iff $p = 1$ and $q = 1$

iii. $\vee$, $\rightarrow$, and $\leftrightarrow$ are definable in terms of $\neg$ and $\wedge$ in the usual way: (i) $p \vee q = 1$ iff $\neg(\neg p \wedge \neg q) = 1$; (ii) $p \rightarrow q = 1$ iff $\neg(p \wedge \neg q) = 1$; (iii) $p \leftrightarrow q = 1$ iff $p \rightarrow q = 1$ and $q \rightarrow p = 1$.

iv. $\exists x[\phi] = 1$ on an assignment g iff there is an assignment $g[x/v]$ such that $\phi = 1$ on $g[x/v]$; $g[x/v]$ is the assignment g', whose domain is the union of the domain of g and $\{x\}$, such that $g'(x) = v$ and for all y in the domain of g' such that $y \neq x$, $g'(y) = g(y)$.

v. $\forall$ is definable in terms of $\exists$ and $\neg$ in the usual way: $\forall x[\phi] = 1$ iff $\neg\exists x[\neg\phi] = 1$.

vi. $\lambda x : \psi.\phi$, on an assignment g, is the partial function f, whose domain is the elements of the set $\{v|\psi = 1 \text{ on } g[x/v]\}$, such that $f(v) =$ the value of ϕ on $g[x/v]$ (defined as above); if $\phi \in \mathrm{D}_t$, then f is the characteristic function, with domain as above, of the set $\{v|\phi = 1 \text{ on } g[x/v]\}$. (Note: $\lambda x : \psi.\phi$ is

treat the predicate-logical terms as a shorthand for denotations of the kind shown in (4c). See Potts (2005:69ff.) for useful discussion of direct vs. indirect interpretation, as well as for an example of a system that does rely crucially on an intermediate translation.

undefined if $\psi \notin \mathrm{D}_t$. If ψ is unspecified, then $\lambda x_\sigma.\phi$ is the function f, defined as above, whose domain is D_σ.)

vii. $\imath x[\phi]$, on an assignment g, is the unique v such that $\phi = 1$ on $g[x/v]$ (defined as above); else undefined.

(5) Composition rules (Heim and Kratzer 1998:48–49, 105–106, 114):

a. **Terminal Nodes:** If α is a terminal node that bears no index, then $[\![\alpha]\!]^{\mathcal{M},g}$ is specified in the lexicon and is independent of the assignment function (i.e., is equivalent to $[\![\alpha]\!]^{\mathcal{M}}$).

b. **Traces and Pronouns:** If α is a terminal node bearing the index i in the domain of the assignment function g, then $[\![\alpha_i]\!]^{\mathcal{M},g} = g(i)$.

c. **Non-Branching Nodes:** If α is a non-branching node and β is its daughter, then $[\![\alpha]\!]^{\mathcal{M},g} = [\![\beta]\!]^{\mathcal{M},g}$.

d. **Functional Application:** If α is a branching node and β and γ are its daughters, and if $[\![\gamma]\!]^{\mathcal{M},g}$ is in the domain of the function $[\![\beta]\!]^{\mathcal{M},g}$, then $[\![\alpha]\!]^{\mathcal{M},g} = [\![\beta]\!]^{\mathcal{M},g}([\![\gamma]\!]^{\mathcal{M},g})$.

e. **Predicate Modification:** If α is a branching node and β and γ are its daughters, and if $[\![\beta]\!]^{\mathcal{M},g}$ and $[\![\gamma]\!]^{\mathcal{M},g}$ are both elements of $\mathrm{D}_{\langle s,et\rangle}$, then $[\![\alpha]\!]^{\mathcal{M},g} = \lambda w_s \lambda x_e.[\![\beta]\!]^{\mathcal{M},g}(w)(x) = [\![\gamma]\!]^{\mathcal{M},g}(w)(x) = 1$.

f. **Predicate Abstraction:** If α is a branching node and β and γ are its daughters, and if β is (an operator bearing) the index i in the domain of the assignment function g, then $[\![\alpha]\!]^{\mathcal{M},g} = \lambda x.[\![\gamma]\!]^{\mathcal{M},g^{x/i}}$, where $g^{x/i}$ is the assignment g', whose domain is the union of the domain of g and $\{i\}$, such that $g'(i) = x$ and for all

j in the domain of g' such that $j \neq i$, $g'(j) = g(j)$.

(6) Degrees and scales:

a. A scale is a triple $\langle D, R, \Delta \rangle$, where D is a set of degrees (i.e., an element of $\mathrm{D}_{\langle d,t \rangle}$), R is a total ordering on D, and Δ is a dimension measured by the degrees in D (Kennedy and McNally 2005:353–354).

b. For a scale $S = \langle D_S, R_S, \Delta_S \rangle$, for any $d_1 \in D_S$ and $d_2 \in D_S$:

i. $d_1 \geq d_2 = 1$ iff d_1 is at least as great as d_2 as determined by R_S.

ii. $d_1 > d_2 = 1$ iff $d_1 \geq d_2 = 1$ and $d_2 \geq d_1 = 0$.

iii. $d_1 >! d_2 = 1$ iff $d_1 > d_2 = 1$ and d_1 is noticeably or significantly (as determined by context) greater than d_2 as determined by R_S (cf. Fara 2000).

(7) Ordering sources (Kratzer 1991:644):

a. An ordering source is a set of propositions A (i.e., an element of $\mathrm{D}_{\langle st,t \rangle}$) that specifies a partial ordering $\leq_A$ on a set of accessible worlds B (an element of $\mathrm{D}_{\langle s,t \rangle}$).

b. The set of accessible worlds B is determined by the modal base, a function from worlds to sets of worlds (i.e., an element of $\mathrm{D}_{\langle s,st \rangle}$). For a world $w \in \mathrm{D}_s$, the modal base yields the set of worlds accessible from w.

c. For a set of accessible worlds B and an ordering source A, for any $w_1 \in B$ and $w_2 \in B$:

i. $w_1 \leq_A w_2 = 1$ iff the set of propositions in A that are true in w_2 is a subset of the set of propositions in A that are true in w_1, i.e., iff $\{p | p \in A \text{ and } w_2 \in p\} \subseteq \{p | p \in A \text{ and } w_1 \in p\}$.

ii. $w_1 <_A w_2 = 1$ iff $w_1 \leq_A w_2 = 1$ and $w_2 \leq_A w_1 = 0$.

iii. $w_1 <!_A w_2 = 1$ iff $w_1 <_A w_2 = 1$ and w_1 is noticeably or significantly (as determined by context) closer to the ideal specified by A than w_2 is; cf. (6b.iii) above.

A.3 Sample Derivations

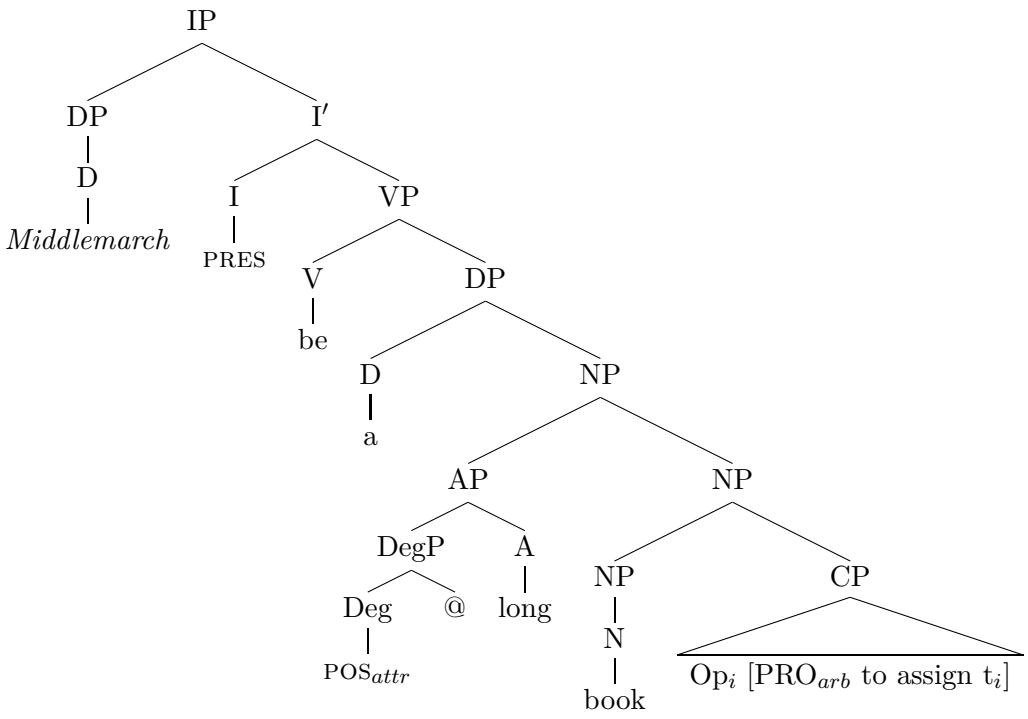
A.3.1 Nominal AIC

Here I show the derivation of the nominal AIC *Middlemarch is a long book to assign*. I depart slightly from the exposition in chapter 2, insofar as the semantics given here is fully intensional. Accordingly, the lexical entries used here are modified so as to include world arguments, and the modality associated with the infinitival relative clause is treated as a modal ordering source. The nominal-AIC derivation shown here is thus the same in spirit as the one presented in chapter 2, but the implementation uses the grammar developed in chapter 3 and codified in section A.2 above.

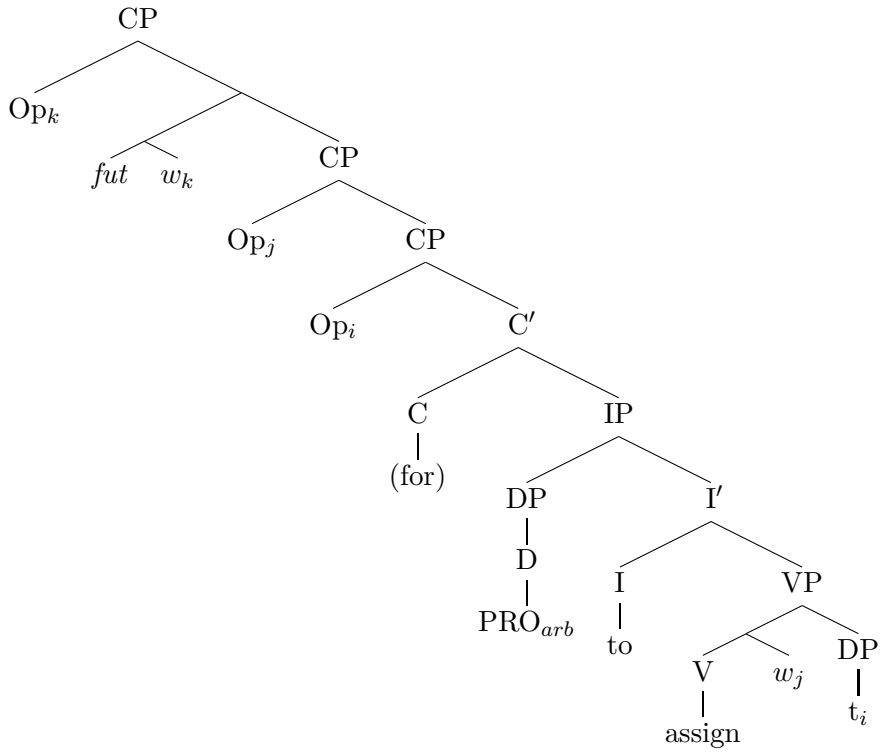
I make a few simplifying syntactic assumptions in the trees in (8) and (9) below. I insert world arguments as necessary, and treat Deg^0 in (8) as the main sentence predicate (i.e., the one that combines with the actual-world argument, @), with the verb *be* and the inflectional head I^0 serving simply as identity functions on their complements. I treat the indefinite article that heads the predicative DP as an identity function, as well, following Heim and Kratzer (1998:62). I ignore the semantic contribution of tense morphology. The item *fut* in (9) is a future-oriented modal, functioning like a Deg^0-plus-A^0 constituent in a clausal AIC; I assume that *fut* introduces a default ordering source (operating on a circumstantial modal

base) and a POS-like world-comparison relation for the infinitival relative clause. The world arguments w_j and w_k in (9) are bound by the coindexed operators, and may be viewed as traces of movement. The overall effect is to make *fut* combine with the intension of its CP argument, and to take the intension of the whole CP so that it combines with the adjacent NP by Predicate Modification. (The entire clause may, if one prefers, be viewed instead as an extended functional projection, FP, headed by the F^0 head *fut*.)

(8) LF of the sentence *Middlemarch is a long book to assign*:



(9) LF of the infinitival CP in (8):



(10) Lexical entries:

a. $[\![Middlemarch]\!]^{\mathcal{M}} = \mathbf{m} \in \mathrm{D}_e$

b. $[\![long]\!]^{\mathcal{M}} = \lambda w_s \lambda x_e.\mathbf{long}(w)(x) \in \mathrm{D}_{\langle s,ed\rangle}$

c. $[\![book]\!]^{\mathcal{M}} = \lambda w_s \lambda x_e.\mathbf{book}(w)(x) \in \mathrm{D}_{\langle s,et\rangle}$

d. $[\![assign]\!]^{\mathcal{M}} = \lambda w_s \lambda x_e \lambda y_e.\mathbf{assign}(w)(x)(y) \in \mathrm{D}_{\langle s,\langle e,et\rangle\rangle}$

e. $[\![\mathrm{PRO}_{arb}]\!]^{\mathcal{M}} = \mathbf{a} \in \mathrm{D}_e$

f. $[\![\mathrm{POS}_{attr}]\!]^{\mathcal{M}} = \lambda w_s \lambda G_{\langle s,ed\rangle} \lambda P_{\langle s,et\rangle} \lambda x_e.G(w)(x) >!\ \mathbf{s}(\lambda y_e : P(w)(y).G(w)(y)) \wedge$
$P(w)(x) \in \mathrm{D}_{\langle s,\langle\langle s,ed\rangle,\langle\langle s,et\rangle,et\rangle\rangle\rangle}$

g. $[\![fut]\!]^{\mathcal{M}} = \lambda w_s \lambda P_{\langle s,et\rangle} \lambda x_e.\imath w'_s[w' \in \lambda u_s.P(u)(x) \wedge \forall w''_s[w'' \in \lambda u_s.P(u)(x) \rightarrow$
$w' \leq_{\mathrm{FUT}(w)} w'']] <!_{\mathrm{FUT}(w)}\ \mathbf{s}^{\mathbf{w}}(\lambda y_e.\imath w'_s[w' \in \lambda u_s.P(u)(y) \wedge \forall w''_s[w'' \in \lambda u_s.P(u)(y)$

$\rightarrow w' \leq_{\text{FUT}(w)} w'']]) \in \text{D}_{\langle s,\langle\langle s,et\rangle,et\rangle\rangle}$

h. $[\![@]\!]^{\mathcal{M}} = @ \in \text{D}_s$

i. $[\![\text{PRES}]\!]^{\mathcal{M}} = [\![be]\!]^{\mathcal{M}} = [\![a]\!]^{\mathcal{M}} = [\![to]\!]^{\mathcal{M}} = \lambda P_{\langle e,t\rangle}.P \in \text{D}_{\langle et,et\rangle}$

j. $[\![(for)]\!]^{\mathcal{M}} = \lambda p_t.p \in \text{D}_{\langle t,t\rangle}$

(11) Notes on lexical entries:

a. **s** and $\mathbf{s^w}$ are standard-identification functions of types $\langle ed, d\rangle$ and $\langle es, s\rangle$, respectively; they return the standard degree or world for those degrees or worlds associated with individuals in the domain of their argument. (**s** is due to Kennedy 2007.)

b. The ordering source $\text{FUT}(w)$, introduced by the lexical item *fut*, specifies for a world w the set of propositions consistent with what is likely, reasonable, permissible, desirable, or normal.

c. The denotation of PRO_{arb} is the constant **a**, a special constant that stands for the 'average' or 'ordinary' person that may be overtly lexicalized as the pronoun *one*.

(12) Composition: proceeds from the bottom up, with each successive step corresponding to the next branching node; all composition is Functional Application, except as noted. I do not show the internal composition of non-branching nodes.

a. Internal composition of CP:

i. $[\![assign]\!]^{\mathcal{M},g}([\![w_j]\!]^{\mathcal{M},g}) = \lambda x_e \lambda y_e.\mathbf{assign}(g(j))(x)(y)$

ii. $[\![assign\ w_j]\!]^{\mathcal{M},g}([\![t_i]\!]^{\mathcal{M},g}) = \lambda y_e.\mathbf{assign}(g(j))(g(i))(y)$

iii. $[\![to]\!]^{\mathcal{M},g}([\![assign\ w_j\ t_i]\!]^{\mathcal{M},g}) = \lambda y_e.\mathbf{assign}(g(j))(g(i))(y)$

iv. $[\![to\ assign\ w_j\ t_i]\!]^{\mathcal{M},g}([\![\mathrm{PRO_{arb}}]\!]^{\mathcal{M},g}) = \mathbf{assign}(g(j))(g(i))(\mathbf{a})$

v. $[\![(for)]\!]^{\mathcal{M},g}([\![\mathrm{PRO}_{arb}\ to\ assign\ w_j\ t_i]\!]^{\mathcal{M},g}) = \mathbf{assign}(g(j))(g(i))(\mathbf{a})$

vi. $[\![\mathrm{Op}_i\ (for)\ \mathrm{PRO}_{arb}\ to\ assign\ w_j\ t_i]\!]^{\mathcal{M},g} = \lambda x_e.\mathbf{assign}(g(j))(x)(\mathbf{a})$

(by Predicate Abstraction)

vii. $[\![\mathrm{Op}_j\ \mathrm{Op}_i\ (for)\ \mathrm{PRO}_{arb}\ to\ assign\ w_j\ t_i]\!]^{\mathcal{M},g} = \lambda w_s\lambda x_e.\mathbf{assign}(w)(x)(\mathbf{a})$

(by Predicate Abstraction)

viii. Separate subtree:

$[\![fut]\!]^{\mathcal{M},g}([\![w_k]\!]^{\mathcal{M},g}) = \lambda P_{\langle s,et\rangle}\lambda x_e.\imath w'_s[w' \in \lambda u_s.P(u)(x) \wedge \forall w''_s[w'' \in \lambda u_s.P(u)(x) \rightarrow w' \leq_{\mathrm{FUT}(g(k))} w'']] <!_{\mathrm{FUT}(g(k))}\ \mathbf{s^w}(\lambda y_e.\imath w'_s[w' \in \lambda u_s.P(u)(y) \wedge \forall w''_s[w'' \in \lambda u_s.P(u)(y) \rightarrow w' \leq_{\mathrm{FUT}(g(k))} w'']])$

ix. Back to previous subtree:

$[\![fut\ w_k]\!]^{\mathcal{M},g}([\![\mathrm{Op}_j\ \mathrm{Op}_i\ (for)\ \mathrm{PRO}_{arb}\ to\ assign\ w_j\ t_i]\!]^{\mathcal{M},g}) = \lambda x_e.\imath w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(x)(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(x)(\mathbf{a}) \rightarrow w' \leq_{\mathrm{FUT}(g(k))} w'']] <!_{\mathrm{FUT}(g(k))}\ \mathbf{s^w}(\lambda y_e.\imath w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a}) \rightarrow w' \leq_{\mathrm{FUT}(g(k))} w'']])$

x. $[\![\mathrm{Op}_k\ fut\ w_k\ \mathrm{Op}_j\ \mathrm{Op}_i\ (for)\ \mathrm{PRO}_{arb}\ to\ assign\ w_j\ t_i]\!]^{\mathcal{M},g} = \lambda w_s\lambda x_e.\imath w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(x)(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(x)(\mathbf{a}) \rightarrow w' \leq_{\mathrm{FUT}(w)} w'']] <!_{\mathrm{FUT}(w)}\ \mathbf{s^w}(\lambda y_e.\imath w'_s[w' \in \lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s.\mathbf{assign}(u)(y)(\mathbf{a}) \rightarrow w' \leq_{\mathrm{FUT}(w)} w'']])$

(by Predicate Abstraction)

b. Notation and truth conditions for CP:

   i. The CP, and its denotation shown immediately above in (12a.x), will henceforth be abbreviated as *to assign* and $\mathcal{CP}$, respectively, for the sake of legibility.

   ii. Truth conditions: for a world w and an individual x, $\mathcal{CP}(w)(x) = 1$ iff the world most consistent with $\textsc{fut}(w)$ in which one assigns x is significantly more consistent with $\textsc{fut}(w)$ than the standard for most-consistent-with-$\textsc{fut}(w)$ worlds in which one assigns something (paraphrased below as 'x is to be assigned in w').

c. Composition of main clause:

   i. $[\![\textsc{pos}_{attr}]\!]^{\mathcal{M},g}([\![@]\!]^{\mathcal{M},g}) = \lambda G_{\langle s,ed\rangle}\lambda P_{\langle s,et\rangle}\lambda x_e.G(@)(x) >!\ \mathbf{s}(\lambda y_e :$
   $P(@)(y).G(@)(y)) \wedge P(@)(x)$

   ii. $[\![\textsc{pos}_{attr}\ @]\!]^{\mathcal{M},g}([\![long]\!]^{\mathcal{M},g}) = \lambda P_{\langle s,et\rangle}\lambda x_e.\mathbf{long}(@)(x) >!\ \mathbf{s}(\lambda y_e :$
   $P(@)(y).\mathbf{long}(@)(y)) \wedge P(@)(x)$

   iii. Separate subtree:
   $[\![book\ to\ assign]\!]^{\mathcal{M},g} = \lambda w_s\lambda x_e.\mathbf{book}(w)(x) \wedge \mathcal{CP}(w)(x)$
   (by Predicate Modification)

   iv. Back to previous subtree:
   $[\![\textsc{pos}_{attr}\ @\ long]\!]^{\mathcal{M},g}([\![book\ to\ assign]\!]^{\mathcal{M},g}) = \lambda x_e.\mathbf{long}(@)(x) >!\ \mathbf{s}(\lambda y_e :$
   $\mathbf{book}(@)(y) \wedge \mathcal{CP}(@)(y).\mathbf{long}(@)(y)) \wedge \mathbf{book}(@)(x) \wedge \mathcal{CP}(@)(x)$

   v. $[\![a]\!]^{\mathcal{M},g}([\![\textsc{pos}_{attr}\ @\ long\ book\ to\ assign]\!]^{\mathcal{M},g}) = \lambda x_e.\mathbf{long}(@)(x) >!\ \mathbf{s}(\lambda y_e :$
   $\mathbf{book}(@)(y) \wedge \mathcal{CP}(@)(y).\mathbf{long}(@)(y)) \wedge \mathbf{book}(@)(x) \wedge \mathcal{CP}(@)(x)$

vi. $[\![be]\!]^{\mathcal{M},g}([\![a\ \text{POS}_{attr}\ @\ long\ book\ to\ assign]\!]^{\mathcal{M},g}) = \lambda x_e.\mathbf{long}(@)(x) >!\ \mathbf{s}(\lambda y_e :$ $\mathbf{book}(@)(y) \wedge \mathcal{CP}(@)(y).\mathbf{long}(@)(y)) \wedge \mathbf{book}(@)(x) \wedge \mathcal{CP}(@)(x)$

vii. $[\![\text{PRES}]\!]^{\mathcal{M},g}([\![be\ a\ \text{POS}_{attr}\ @\ long\ book\ to\ assign]\!]^{\mathcal{M},g}) = \lambda x_e.\mathbf{long}(@)(x)$ $>!\ \mathbf{s}(\lambda y_e : \mathbf{book}(@)(y) \wedge \mathcal{CP}(@)(y).\mathbf{long}(@)(y)) \wedge \mathbf{book}(@)(x) \wedge \mathcal{CP}(@)(x)$

viii. $[\![\text{PRES}\ be\ a\ \text{POS}_{attr}\ @\ long\ book\ to\ assign]\!]^{\mathcal{M},g}([\![Middlemarch]\!]^{\mathcal{M},g}) =$ $\mathbf{long}(@)(\mathbf{m}) >!\ \mathbf{s}(\lambda y_e : \mathbf{book}(@)(y) \wedge \mathcal{CP}(@)(y).\mathbf{long}(@)(y)) \wedge \mathbf{book}(@)(\mathbf{m})$ $\wedge \mathcal{CP}(@)(\mathbf{m})$

ix. The expression immediately above is the denotation of the entire sentence, $[\![Middlemarch\ is\ a\ long\ book\ to\ assign]\!]^{\mathcal{M},g}$.

d. Truth conditions for main clause:

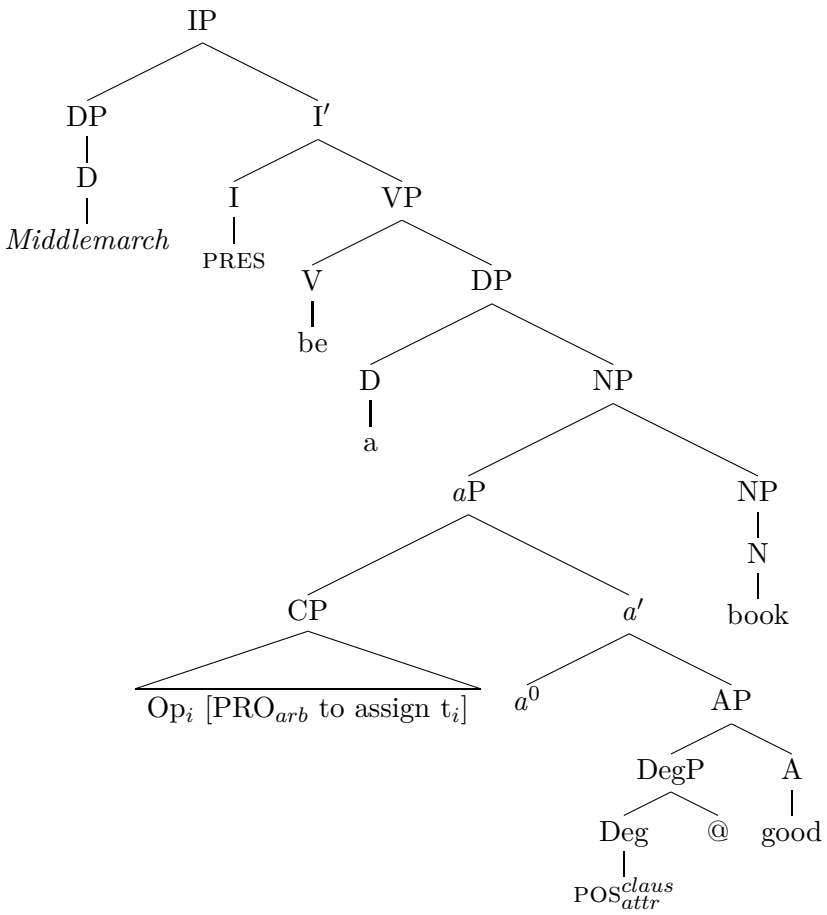
$\mathbf{long}(@)(\mathbf{m}) >!\ \mathbf{s}(\lambda y_e : \mathbf{book}(@)(y) \wedge \mathcal{CP}(@)(y).\mathbf{long}(@)(y)) \wedge \mathbf{book}(@)(\mathbf{m})$ $\wedge \mathcal{CP}(@)(\mathbf{m}) = 1$ iff, in the actual world, *Middlemarch*'s length significantly exceeds the standard of length for books that are to be assigned, and *Middlemarch* is a book to be assigned.

A.3.2 Clausal AIC

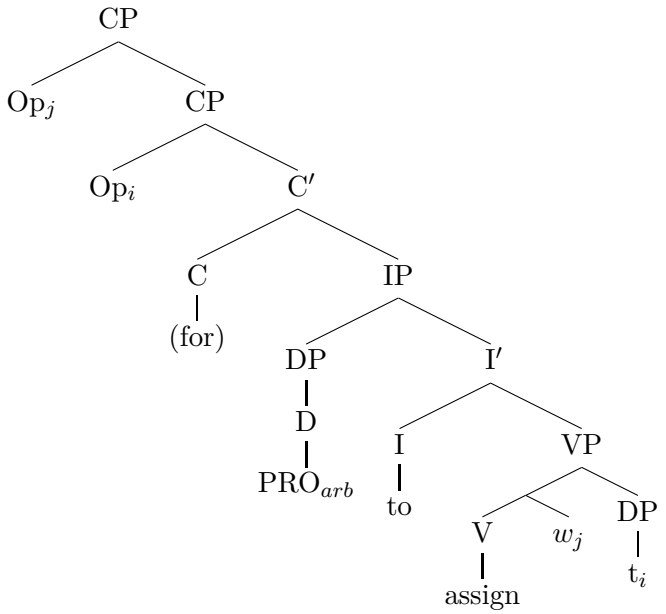
In this section I show the derivation of the clausal AIC *Middlemarch is a good book to assign*. The exposition is nearly identical to that in chapter 3, with the addition of overt world arguments in the syntax. I adopt the same syntactic conventions and simplifications as above with the nominal-AIC derivation in section A.3.1. The clausal AIC is distinguished from the nominal AIC above not only in the syntactic position of the infinitival relative CP, but also in the absence of *fut*, and its associated world argument, from the CP (or, if

one prefers, the absence of the extended FP projection above CP). In clausal AICs, the adjective introduces the modal ordering source—operating, once again, on a circumstantial modal base—and so the default ordering source introduced by *fut* is not needed. Note that *a* and a^0 must be kept distinct in the representations below: the former is the indefinite determiner; the latter is the head of the functional projection *a*P.

(13) LF of the sentence *Middlemarch is a good book to assign*:



(14) LF of the infinitival CP in (13); cf. (9) above:



(15) Lexical entries; cf. the entries above in (10) and the notes in (11):

a. $[\![Middlemarch]\!]^{\mathcal{M}} = \mathbf{m} \in \mathrm{D}_e$

b. $[\![good]\!]^{\mathcal{M}} = \lambda w_s \lambda P_{\langle s,et\rangle} \lambda x_e . \imath w'_s [w' \in \lambda u_s . P(u)(x) \wedge \forall w''_s [w'' \in \lambda u_s . P(u)(x) \rightarrow w' \leq_{\mathrm{GOOD}(w)} w'']] \in \mathrm{D}_{\langle s,\langle\langle s,et\rangle,es\rangle\rangle}$

c. $[\![book]\!]^{\mathcal{M}} = \lambda w_s \lambda x_e . \mathbf{book}(w)(x) \in \mathrm{D}_{\langle s,et\rangle}$

d. $[\![assign]\!]^{\mathcal{M}} = \lambda w_s \lambda x_e \lambda y_e . \mathbf{assign}(w)(x)(y) \in \mathrm{D}_{\langle s,\langle e,et\rangle\rangle}$

e. $[\![\mathrm{PRO}_{arb}]\!]^{\mathcal{M}} = \mathbf{a} \in \mathrm{D}_e$

f. $[\![\mathrm{POS}^{claus}_{attr}]\!]^{\mathcal{M}} = \lambda w_s \lambda G_{\langle s,\langle\langle s,et\rangle,es\rangle\rangle} \lambda P_{\langle s,et\rangle} \lambda N_{\langle s,et\rangle} \lambda x_e . G(w)(P)(x) <!_{\mathcal{F}(G)(w)}$ $\mathbf{s}^{\mathbf{w}}(\lambda y_e : N(w)(y) . G(w)(P)(y)) \wedge N(w)(x) \in \mathrm{D}_{\langle s,\langle\langle s,\langle\langle s,et\rangle,es\rangle\rangle,\langle\langle s,et\rangle,\langle\langle s,et\rangle,et\rangle\rangle\rangle\rangle}$

g. $[\![@]\!]^{\mathcal{M}} = @ \in \mathrm{D}_s$

h. $[\![\mathrm{PRES}]\!]^{\mathcal{M}} = [\![be]\!]^{\mathcal{M}} = [\![a]\!]^{\mathcal{M}} = [\![to]\!]^{\mathcal{M}} = \lambda P_{\langle e,t\rangle} . P \in \mathrm{D}_{\langle et,et\rangle}$

i. $[\![(for)]\!]^{\mathcal{M}} = \lambda p_t . p \in \mathrm{D}_{\langle t,t\rangle}$

j. $[\![a^0]\!]^{\mathcal{M}} = \lambda\mathscr{P}_{\langle\langle s,et\rangle,\langle\langle s,et\rangle,et\rangle\rangle}.\mathscr{P} \in \mathrm{D}_{\langle\langle\langle s,et\rangle,\langle\langle s,et\rangle,et\rangle\rangle\rangle,\langle\langle\langle s,et\rangle,\langle\langle s,et\rangle,et\rangle\rangle\rangle}$

(16) Notes on lexical entries, in addition to those above in (11):

a. The ordering source $\textsc{good}(w)$, associated with the adjective *good*, specifies for a world w the set of propositions consistent with what is good or desirable.

b. The function $\mathcal{F}$ that appears in the lexical entry of $\textsc{pos}^{claus}_{attr}$ is a function from gradable adjectives to their associated ordering sources; e.g., $\mathcal{F}(good)(w) = \textsc{good}(w)$.

(17) Composition: conventions are the same as those listed above in (12) on page 195.

a. Internal composition of CP (same as for nominal AIC above, without *fut* and its world argument):

i. $[\![assign]\!]^{\mathcal{M},g}([\![w_j]\!]^{\mathcal{M},g}) = \lambda x_e \lambda y_e.\mathbf{assign}(g(j))(x)(y)$

ii. $[\![assign\ w_j]\!]^{\mathcal{M},g}([\![t_i]\!]^{\mathcal{M},g}) = \lambda y_e.\mathbf{assign}(g(j))(g(i))(y)$

iii. $[\![to]\!]^{\mathcal{M},g}([\![assign\ w_j\ t_i]\!]^{\mathcal{M},g}) = \lambda y_e.\mathbf{assign}(g(j))(g(i))(y)$

iv. $[\![to\ assign\ w_j\ t_i]\!]^{\mathcal{M},g}([\![\mathrm{PRO}_{\mathrm{arb}}]\!]^{\mathcal{M},g}) = \mathbf{assign}(g(j))(g(i))(\mathbf{a})$

v. $[\![(for)]\!]^{\mathcal{M},g}([\![\mathrm{PRO}_{arb}\ to\ assign\ w_j\ t_i]\!]^{\mathcal{M},g}) = \mathbf{assign}(g(j))(g(i))(\mathbf{a})$

vi. $[\![\mathrm{Op}_i\ (for)\ \mathrm{PRO}_{arb}\ to\ assign\ w_j\ t_i]\!]^{\mathcal{M},g} = \lambda x_e.\mathbf{assign}(g(j))(x)(\mathbf{a})$
(by Predicate Abstraction)

vii. $[\![\mathrm{Op}_j\ \mathrm{Op}_i\ (for)\ \mathrm{PRO}_{arb}\ to\ assign\ w_j\ t_i]\!]^{\mathcal{M},g} = \lambda w_s \lambda x_e.\mathbf{assign}(w)(x)(\mathbf{a})$
(by Predicate Abstraction)

viii. The expression immediately above is the denotation of the entire CP, $[\![to\ assign]\!]^{\mathcal{M},g}$, abbreviated below as $\mathcal{CP}$.

b. Composition of main clause; for the sake of legibility, I abbreviate the denotation of *good* as $\lambda w_s \lambda P_{\langle s,et\rangle} \lambda x_e.\mathbf{good}(w)(P)(x)$ until the end of the derivation, where the abbreviation is replaced by the lexical entry given above in (15b); the abbreviation $\mathcal{CP}$, defined immediately above, is similarly replaced at the end of the derivation.

i. $[\![\text{POS}^{claus}_{attr}]\!]^{\mathcal{M},g}([\![@]\!]^{\mathcal{M},g}) = \lambda G_{\langle s,\langle\langle s,et\rangle,es\rangle\rangle} \lambda P_{\langle s,et\rangle} \lambda N_{\langle s,et\rangle} \lambda x_e.G(@)(P)(x)$
$<!_{\mathcal{F}(G)(@)}\ \mathbf{s^w}(\lambda y_e : N(@)(y).G(@)(P)(y)) \wedge N(@)(x)$

ii. $[\![\text{POS}^{claus}_{attr}\ @]\!]^{\mathcal{M},g}([\![good]\!]^{\mathcal{M},g}) = \lambda P_{\langle s,et\rangle} \lambda N_{\langle s,et\rangle} \lambda x_e.\mathbf{good}(@)(P)(x)$
$<!_{\text{GOOD}(@)}\ \mathbf{s^w}(\lambda y_e : N(@)(y).\mathbf{good}(@)(P)(y)) \wedge N(@)(x)$

iii. $[\![a^0]\!]^{\mathcal{M},g}([\![\text{POS}^{claus}_{attr}\ @\ good]\!]^{\mathcal{M},g}) = \lambda P_{\langle s,et\rangle} \lambda N_{\langle s,et\rangle} \lambda x_e.\mathbf{good}(@)(P)(x)$
$<!_{\text{GOOD}(@)}\ \mathbf{s^w}(\lambda y_e : N(@)(y).\mathbf{good}(@)(P)(y)) \wedge N(@)(x)$

iv. $[\![a^0\ \text{POS}^{claus}_{attr}\ @\ good]\!]^{\mathcal{M},g}([\![to\ assign]\!]^{\mathcal{M},g}) = \lambda N_{\langle s,et\rangle} \lambda x_e.\mathbf{good}(@)(\mathcal{CP})(x)$
$<!_{\text{GOOD}(@)}\ \mathbf{s^w}(\lambda y_e : N(@)(y).\mathbf{good}(@)(\mathcal{CP})(y)) \wedge N(@)(x)$

v. $[\![a^0\ \text{POS}^{claus}_{attr}\ @\ good\ to\ assign]\!]^{\mathcal{M},g}([\![book]\!]^{\mathcal{M},g}) = \lambda x_e.\mathbf{good}(@)(\mathcal{CP})(x)$
$<!_{\text{GOOD}(@)}\ \mathbf{s^w}(\lambda y_e : \mathbf{book}(@)(y).\mathbf{good}(@)(\mathcal{CP})(y)) \wedge \mathbf{book}(@)(x)$

vi. $[\![a]\!]^{\mathcal{M},g}([\![a^0\ \text{POS}^{claus}_{attr}\ @\ good\ book\ to\ assign]\!]^{\mathcal{M},g}) = \lambda x_e.\mathbf{good}(@)(\mathcal{CP})(x)$
$<!_{\text{GOOD}(@)}\ \mathbf{s^w}(\lambda y_e : \mathbf{book}(@)(y).\mathbf{good}(@)(\mathcal{CP})(y)) \wedge \mathbf{book}(@)(x)$

vii. $[\![be]\!]^{\mathcal{M},g}([\![a\ a^0\ \text{POS}^{claus}_{attr}\ @\ good\ book\ to\ assign]\!]^{\mathcal{M},g}) = \lambda x_e.\mathbf{good}(@)(\mathcal{CP})(x)$
$<!_{\text{GOOD}(@)}\ \mathbf{s^w}(\lambda y_e : \mathbf{book}(@)(y).\mathbf{good}(@)(\mathcal{CP})(y)) \wedge \mathbf{book}(@)(x)$

viii. $[\![\text{PRES}]\!]^{\mathcal{M},g}([\![be\ a\ a^0\ \text{POS}^{claus}_{attr}\ @\ good\ book\ to\ assign]\!]^{\mathcal{M},g}) =$
$\lambda x_e.\mathbf{good}(@)(\mathcal{CP})(x) <!_{\text{GOOD}(@)}\ \mathbf{s^w}(\lambda y_e : \mathbf{book}(@)(y).\mathbf{good}(@)(\mathcal{CP})(y)) \wedge$
$\mathbf{book}(@)(x)$

ix. $[\![\text{PRES } \textit{be a } a^0 \text{ POS}^{claus}_{attr} \text{ @ } \textit{good book to assign}]\!]^{\mathcal{M},g}([\![\textit{Middlemarch}]\!]^{\mathcal{M},g}) =$ $\mathbf{good}(@)(\mathcal{CP})(\mathbf{m}) <!_{\text{GOOD}(@)} \mathbf{s^w}(\lambda y_e : \mathbf{book}(@)(y).\mathbf{good}(@)(\mathcal{CP})(y)) \wedge \mathbf{book}(@)(\mathbf{m})$

x. The expression immediately above is the denotation of the entire sentence, $[\![\textit{Middlemarch is a good book to assign}]\!]^{\mathcal{M},g}$. Two substitutions are performed on this expression below.

xi. Substitution of $\lambda w_s \lambda P_{\langle s,et\rangle} \lambda x_e . \imath w'_s[w' \in \lambda u_s . P(u)(x) \wedge \forall w''_s[w'' \in \lambda u_s . P(u)(x) \rightarrow w' \leq_{\text{GOOD}(w)} w'']]$ for **good**, from (15b) above:

$\imath w'_s[w' \in \lambda u_s . \mathcal{CP}(u)(\mathbf{m}) \wedge \forall w''_s[w'' \in \lambda u_s . \mathcal{CP}(u)(\mathbf{m}) \rightarrow w' \leq_{\text{GOOD}(@)} w'']] <!_{\text{GOOD}(@)} \mathbf{s^w}(\lambda y_e : \mathbf{book}(@)(y).\imath w'_s[w' \in \lambda u_s . \mathcal{CP}(u)(y) \wedge \forall w''_s[w'' \in \lambda u_s . \mathcal{CP}(u)(y) \rightarrow w' \leq_{\text{GOOD}(@)} w'']]) \wedge \mathbf{book}(@)(\mathbf{m})$

xii. Substitution of $\lambda w_s \lambda x_e . \mathbf{assign}(w)(x)(\mathbf{a})$ for $\mathcal{CP}$, from (17a.vii) above:

$\imath w'_s[w' \in \lambda u_s . \mathbf{assign}(u)(\mathbf{m})(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s . \mathbf{assign}(u)(\mathbf{m})(\mathbf{a}) \rightarrow w' \leq_{\text{GOOD}(@)} w'']] <!_{\text{GOOD}(@)} \mathbf{s^w}(\lambda y_e : \mathbf{book}(@)(y).\imath w'_s[w' \in \lambda u_s . \mathbf{assign}(u)(y)(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s . \mathbf{assign}(u)(y)(\mathbf{a}) \rightarrow w' \leq_{\text{GOOD}(@)} w'']]) \wedge \mathbf{book}(@)(\mathbf{m})$

c. Truth conditions for main clause:

$\imath w'_s[w' \in \lambda u_s . \mathbf{assign}(u)(\mathbf{m})(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s . \mathbf{assign}(u)(\mathbf{m})(\mathbf{a}) \rightarrow w' \leq_{\text{GOOD}(@)} w'']] <!_{\text{GOOD}(@)} \mathbf{s^w}(\lambda y_e : \mathbf{book}(@)(y).\imath w'_s[w' \in \lambda u_s . \mathbf{assign}(u)(y)(\mathbf{a}) \wedge \forall w''_s[w'' \in \lambda u_s . \mathbf{assign}(u)(y)(\mathbf{a}) \rightarrow w' \leq_{\text{GOOD}(@)} w'']]) \wedge \mathbf{book}(@)(\mathbf{m}) = 1$ iff, according to the GOOD ideal in the actual world, the best world in which *Middlemarch* gets assigned is significantly better than the

standard for those best worlds in which things that are books get assigned; and *Middlemarch* is a book in the actual world.

Bibliography

Abney, Steven Paul. 1987. *The English Noun Phrase in Its Sentential Aspect*. Cambridge, Mass.: MIT dissertation.

Barker, Chris. 2002. The dynamics of vagueness. *Linguistics and Philosophy* 25.1–36.

Bennis, Hans. 2000. Adjectives and argument structure. In *Lexical Specification and Insertion*, ed. by Peter Coopmans, Martin Everaert, and Jane Grimshaw, 27–67. Amsterdam and Philadelphia: John Benjamins.

Bennis, Hans. 2004. Unergative adjectives and psych verbs. In *The Unaccusativity Puzzle*, ed. by Artemis Alexiadou, Elena Anagnostopoulou, and Martin Everaert, 84–113. Oxford: Oxford University Press.

Berman, Arlene. 1974a. *Adjectives and Adjective Complement Constructions in English*. Cambridge, Mass.: Harvard University dissertation. [Report no. NSF-29].

Berman, Arlene. 1974b. Infinitival relative constructions. In *Papers from the Tenth Regional Meeting of the Chicago Linguistic Society*, 37–46. Chicago: Chicago Linguistic Society.

Bhatt, Rajesh. 1999. *Covert Modality in Non-Finite Contexts*. Philadelphia: University of Pennsylvania dissertation.

Bhatt, Rajesh. 2002. The raising analysis of relative clauses: Evidence from adjectival modification. *Natural Language Semantics* 10.43–90.

Bianchi, Valentina. 1999. *Consequences of Antisymmetry: Headed Relative Clauses*. Berlin: Mouton de Gruyter.

Bolinger, Dwight. 1967. Adjectives in English: Attribution and predication. *Lingua* 18.1–34.

Bresnan, Joan W. 1972. *Theory of Complementation in English Syntax*. Cambridge, Mass.: MIT dissertation.

Bresnan, Joan W. 1973. Syntax of the comparative clause construction in English. *Linguistic Inquiry* 4.275–343.

Bresnan, Joan W. 1975. Comparative deletion and constraints on transformations. *Linguistic Analysis* 1.25–74.

Carlson, Greg N. 1977. Amount relatives. *Language* 53.520–542.

Carpenter, Bob. 1997. *Type-Logical Semantics*. Cambridge, Mass.: MIT Press.

Chomsky, Noam. 1977. On *wh*-movement. In *Formal Syntax*, ed. by Peter W. Culicover, Thomas Wasow, and Adrian Akmajian, 71–132. New York: Academic Press.

Chomsky, Noam. 1994. Bare phrase structure. *MIT Occasional Papers in Linguistics* 5.

Cresswell, M. J. 1976. The semantics of degree. In *Montague Grammar*, ed. by Barbara H. Partee, 261–292. New York: Academic Press.

de Vries, Mark. 2002. *The Syntax of Relativization*. Amsterdam: University of Amsterdam dissertation.

Dubinsky, Stanley. 1998. Easy clauses to mistake as relatives: The syntax of English postnominal infinitives. In *Proceedings of the Twenty-Seventh Western Conference on Linguistics*, ed. by Elly van Gelderen and Vida Samiian, volume 10, 108–119.

Fara, Delia Graff. 2000. Shifting sands: An interest-relative theory of vagueness. *Philosophical Topics* 28.45–81. Originally published under the name "Delia Graff".

Fleisher, Nicholas. 2008a. A crack at a hard nut: Attributive-adjective modality and infinitival relatives. In *Proceedings of the 26th West Coast Conference on Formal Linguistics*, ed. by Charles B. Chang and Hannah J. Haynie, 163–171, Somerville, Mass. Cascadilla Proceedings Project.

Fleisher, Nicholas. 2008b. Positive standards of comparison. In *Proceedings of the 38th Annual Meeting of the North East Linguistic Society*, Amherst. GLSA.

Flickinger, Dan, and John Nerbonne. 1992. Inheritance and complementation: A case study of *easy* adjectives and related nouns. *Computational Linguistics* 18.269–309.

Fox, Danny. 2002. Antecedent-contained deletion and the copy theory of movement. *Linguistic Inquiry* 33.63–96.

Gamut, L. T. F. 1991. *Logic, Language, and Meaning*, volume 1: Introduction to Logic. Chicago: University of Chicago Press.

Geach, P. T. 1970. A program for syntax. *Synthese* 22.3–17.

Grosu, Alexander, and Fred Landman. 1998. Strange relatives of the third kind. *Natural Language Semantics* 6.125–170.

Hackl, Martin, and Jon Nissenbaum. 2003. A modal ambiguity in *for*-infinitival relative clauses. Ms., Pomona College and McGill University.

Heim, Irene. 2006. Remarks on comparative clauses as generalized quantifiers. Ms., MIT.

Heim, Irene, and Angelika Kratzer. 1998. *Semantics in Generative Grammar*. Malden, Mass.: Blackwell.

Hellan, Lars. 1981. *Towards an Integrated Analysis of Comparatives*. Tübingen: Gunter Narr Verlag.

Higgins, F. R. 1979. *The Pseudo-Cleft Construction in English*. New York: Garland.

Hoeksema, Jack. 1983. Negative polarity and the comparative. *Natural Language and Linguistic Theory* 1.403–434.

Horn, Laurence R. 1989. *A Natural History of Negation*. Chicago: University of Chicago Press.

Huddleston, Rodney, and Geoffrey K. Pullum. 2002. *The Cambridge Grammar of the English Language*. Cambridge: Cambridge University Press.

Hulsey, Sarah, and Uli Sauerland. 2006. Sorting out relative clauses. *Natural Language Semantics* 14.111–137.

Jacobson, Pauline. 1992. The lexical entailment theory of control and the *tough* construction. In *Lexical Matters*, ed. by Ivan A. Sag and Anna Szabolcsi, 269–299. Stanford: CSLI Publications.

Jäger, Gerhard. 2003. Towards an explanation of copula effects. *Linguistics and Philosophy* 26.557–593.

Jones, Charles. 1991. *Purpose Clauses: Syntax, Thematics, and Semantics of English Purpose Constructions.* Dordrecht: Kluwer.

Kayne, Richard S. 1994. *The Antisymmetry of Syntax.* Cambridge, Mass.: MIT Press.

Kennedy, Christopher. 1999. *Projecting the Adjective: The Syntax and Semantics of Gradability and Comparison.* New York: Garland.

Kennedy, Christopher. 2007. Vagueness and grammar: The semantics of relative and absolute gradable predicates. *Linguistics and Philosophy* 30.1–45.

Kennedy, Christopher, and Louise McNally. 2005. Scale structure, degree modification, and the semantics of gradable predicates. *Language* 81.345–381.

Kennedy, Christopher, and Jason Merchant. 2000. Attributive comparative deletion. *Natural Language and Linguistic Theory* 18.89–146.

Kiparsky, Paul, and Carol Kiparsky. 1970. Fact. In *Progress in Linguistics*, ed. by Manfred Bierwisch and Karl Erich Heidolph, 143–173. The Hague: Mouton.

Kratzer, Angelika. 1981. The notional category of modality. In *Words, Worlds, and Contexts: New Approaches in Word Semantics*, ed. by H.-J. Eikmeyer and H. Rieser, 38–74. Berlin: Walter de Gruyter.

Kratzer, Angelika. 1991. Modality. In *Semantics: An International Handbook of Contemporary Research*, ed. by Arnim von Stechow and Dieter Wunderlich, 639–650. Berlin: de Gruyter.

Larson, Richard. 1998. Events and modification in nominals. In *Proceedings of Semantics and Linguistic Theory VIII*, ed. by Devon Strolovitch and Aaron Lawson, 145–168. Ithaca: CLC Publications.

Larson, Richard K. 1988. Scope and comparatives. *Linguistics and Philosophy* 11.1–26.

Lasersohn, Peter. 1999. Pragmatic halos. *Language* 75.522–551.

Lechner, Winfried. 2004. *Ellipsis in Comparatives*. Berlin and New York: Mouton de Gruyter.

Levine, Robert D., and Thomas E. Hukari. 2006. *The Unity of Unbounded Dependency Constructions*. Stanford: CSLI Publications.

McCawley, James D. 1998. *The Syntactic Phenomena of English*. Chicago: University of Chicago Press, second edition.

Mikkelsen, Line. 2005. *Copular Clauses: Specification, Predication and Equation*. Amsterdam: John Benjamins.

Potts, Christopher. 2005. *The Logic of Conventional Implicatures*. Oxford: Oxford University Press.

Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech, and Jan Svartvik. 1985. *A Comprehensive Grammar of the English Language*. London and New York: Longman.

Rosenbaum, Peter S. 1967. *The Grammar of English Predicate Complement Constructions*. Cambridge, Mass.: MIT Press.

Rotstein, Carmen, and Yoad Winter. 2004. Total adjectives vs. partial adjectives: Scale structure and higher-order modifiers. *Natural Language Semantics* 12.259–288.

Rullmann, Hotze. 1995. *Maximality in the Semantics of WH-Constructions*. Amherst: University of Massachusetts, Amherst dissertation.

Sauerland, Uli. 1998. *On the Making and Meaning of Chains*. Cambridge, Mass.: MIT dissertation.

Sauerland, Uli. 2004. The interpretation of traces. *Natural Language Semantics* 12.63–127.

Schwarzschild, Roger, and Karina Wilkinson. 2002. Quantifiers in comparatives: A semantics of degree based on intervals. *Natural Language Semantics* 10.1–41.

Siegel, Muffy E. A. 1976. *Capturing the Adjective*. Amherst: University of Massachusetts, Amherst dissertation.

Smessaert, Hans. 1996. Monotonicity properties of comparative determiners. *Linguistics and Philosophy* 19.295–336.

Svenonius, Peter. 1994. The structural location of the attributive adjective. In *Proceedings of the Twelfth West Coast Conference on Formal Linguistics*, ed. by Erin Duncan, Donka Farkas, and Philip Spaelti, 439–454. Stanford: CSLI Publications.

Svenonius, Peter, and Christopher Kennedy. To appear. Northern Norwegian degree questions and the syntax of measurement. In *Phrases of Interpretation*, ed. by Mara Frascarelli. The Hague: Mouton de Gruyter.

Travis, Lisa deMena. 1984. *Parameters and Effects of Word Order Variation*. Cambridge, Mass.: MIT dissertation.

Vergnaud, Jean Roger. 1974. *French Relative Clauses*. Cambridge, Mass.: MIT dissertation.

von Stechow, Arnim. 1984. Comparing semantic theories of comparison. *Journal of Semantics* 3.1–77.

Wells, Rulon S. 1947. Immediate constituents. *Language* 23.81–117.

Williamson, Timothy. 1994. *Vagueness*. London and New York: Routledge.

Yoon, Youngeun. 1996. Total and partial predicates and the weak and strong interpretations. *Natural Language Semantics* 4.217–236.