

Attributive adjectives, infinitival relatives, and the semantics of inappropriateness¹

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I investigate the syntax and semantics of a previously unexamined English adjective construction, exemplified by sentences like *Middlemarch is a long book to assign*. The construction, which I call the nominal attributive-with-infinitive construction (nominal AIC), is of interest for the semantics of gradability and modality. I argue that the major interpretive characteristic of the nominal AIC – the interpretation of inappropriateness associated with it – arises from the interaction between the positive degree operator associated with the gradable adjective and the modality of the infinitival relative clause, which contributes to the computation of the standard of comparison. Nominal AICs are compared and contrasted with a surface-identical construction I call the clausal AIC, with attributive *too*, and with attributive comparatives; they are shown to exhibit major syntactic and semantic differences from all of these. The paper serves both as a contribution to the semantic literature on gradability and as a contribution to the descriptive grammar of English, as it is, to the best of my knowledge, the first systematic description and analysis of the nominal AIC.

I. INTRODUCTION

The following is an investigation of a previously unexamined English adjective construction and its significance for the semantics of gradability. The empirical goal of the paper is to elucidate the syntax and semantics of the construction in question, which I call the nominal attributive-with-infinitive construction (nominal AIC). The theoretical goal is to show how a seemingly idiosyncratic aspect of nominal-AIC interpretation emerges via

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the composition of two independently well-understood parts. Nominal AICs are exemplified by sentences like those in (1).

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

While the infinitival clauses found in nominal AICs may appear at first to have structural and interpretive characteristics of both infinitival relative clauses and degree complement clauses (such as comparative *than* or equative *as* clauses), they are properly analyzed as infinitival relatives. There are important syntactic and semantic differences between nominal AICs and attributive comparatives, as well as between nominal AICs and constructions with attributive *too*. The most salient semantic feature of nominal AICs – the sense of unexpectedness or inappropriateness associated with them – is shown to arise from the interaction between the degree comparison denoted by the positive degree head and the modality of the infinitival relative clause.

Nominal AICs have received at best a passing mention in the existing literature; I am aware of no previous study that offers a syntactic or semantic analysis of the construction. Berman (1974a: 21) briefly mentions nominal-AIC readings in her discussion of ‘hard nuts’ (which I call ‘clausal AICs’ below), only to set the reading aside for the remainder of her investigation. Mandel & Justice (1974) offer a brief sketch of a related predicative-adjective construction, but focus their efforts on providing an informal description of its felicity conditions. I have been unable to find discussion of nominal AICs in Quirk et al. (1985) or Huddleston & Pullum (2002), two major modern grammars of English.

The structure of the paper is as follows. In Section 2, I provide an empirical overview of nominal AICs, discussing their syntactic and semantic properties and showing the ways in which they differ from superficially similar sentence types. In Section 3, I make the case that nominal-AIC infinitival clauses, despite bearing some structural and interpretive similarities to comparative *than* and equative *as* clauses, must be analyzed as infinitival relatives. A compositional semantics for nominal AICs is provided in Section 4. Section 5 contains a summary and discussion of nominal AICs’ contribution to our more general understanding of the syntax and semantics of adjectives.

2. NOMINAL AICs: BASIC DESCRIPTION

2.1 *Inappropriateness and adjectival selection*

On the surface, nominal AICs are identical to a construction I call the clausal attributive-with-infinitive construction (clausal AIC). The terms ‘nominal’

and ‘clausal’ reflect a basic semantic intuition about what the attributive adjective modifies: the adjacent noun or the gapped infinitival clause that follows it.² Nominal AICs may be identified and distinguished from clausal AICs on both syntactic and semantic grounds. The basic contrast between the two constructions is illustrated in (2).

- (2) (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 a gapped infinitival 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 unexpectedness or inappropriateness associated with them. In (2a), we have the sense that *Middlemarch* is unexpectedly or inappropriately long for the purpose at hand, i.e., for an act of assigning. The purpose in question is always expressed by the gapped infinitival clause in a nominal AIC. Clausal AICs lack this interpretation. Any sense of inappropriateness associated with (2b) is due to the meaning of the adjective *bad*; it is not a general interpretive feature of the construction. Consider, for the sake of comparison, the clausal AIC *Middlemarch is a good book to assign*; here, there is no sense that *Middlemarch* is unexpectedly or inappropriately good. Nominal AICs, by contrast, always have the inappropriateness interpretation, even with adjectives that typically lack pejorative connotations (see, e.g., (5a) below).³

Second, nominal AICs may be formed with adjectives that do not independently select infinitival-clause arguments, while clausal AICs may only be formed with adjectives that are able to select such arguments. Evidence comes from a difference in the acceptability of impersonal paraphrases involving an extraposed infinitival-clause subject. The contrast between nominal-AIC *long* and clausal-AIC *bad* is shown in (3) and (4); a second pair of

[2] I use the term ‘gapped infinitival clause’ for any infinitival clause that is missing a constituent the size of DP (ignoring PRO subjects). I reserve the term ‘infinitival relative’ for gapped infinitival clauses that are associated with a relative-clause head (generated either externally or internally; see Section 3.3) in the usual way. Additionally, I use the term ‘modify’ here in a naive, pretheoretical way; as we will soon see, clausal-AIC adjectives do not modify infinitival clauses in any strict sense, but rather take them as arguments.

[3] For brevity’s sake, in what follows I use the term ‘inappropriateness’ as a catch-all to refer to the interpretation of unexpectedness/inappropriateness associated with nominal AICs. In Section 4.3 I discuss the relationship between unexpectedness and inappropriateness in greater detail.

examples, with a nominal AIC formed with *well-made* and a clausal AIC formed with *easy*, is shown in (5) and (6).⁴

- (3) (a) *Middlemarch* is a long book to assign.
 (b) *It is long to assign *Middlemarch*.
- (4) (a) *Middlemarch* is a bad book to assign.
 (b) It is bad to assign *Middlemarch*.
- (5) (a) That is a well-made car to sell for scrap.
 (b) *It is well-made to sell that car for scrap.
- (6) (a) That is an easy car to drive on hills.
 (b) It is easy to drive that car on hills.

Nominal AICs thus permit a wider range of adjectives than clausal AICs, including adjectives that are not independently able to select infinitival-clause arguments.⁵ Moreover, when adjectives like *good* and *easy* occur in nominal AICs, they fail to have impersonal, extraposed-subject paraphrases of the type seen in (4b) and (6b), and instead take on the inappropriateness interpretation that is characteristic of nominal AICs:

- (7) (a) [Context: Someone 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.
- (b) [Context: Someone 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 (3) and (5), the examples in (7) 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.

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

[4] For judgments, I use an asterisk (*) to indicate syntactic ill-formedness and a hash mark (#) to indicate semantic or pragmatic anomaly or, in certain explicitly noted cases, the unavailability of a particular reading for an otherwise grammatical sentence.

[5] Note that I do not wish to claim that the clausal-AIC examples in (4a) and (6a) are derivationally related to their extraposed-subject paraphrases in (4b) and (6b), respectively.

their ability to host adjectives that do not independently select infinitival arguments. The unacceptability of the impersonal paraphrases in (3b) and (5b) suggests that we cannot adopt an analysis in which the attributive adjective modifies the infinitival clause and not the noun (i.e., the type of analysis we might pursue for clausal AICs; for specific proposals on clausal AICs, see Berman 1974a, Flickinger & Nerbonne 1992, Dubinsky 1998, and Huddleston & Pullum 2002). 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 selectional restrictions observed with ordinary attributive adjectives. 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. Notably, it is impossible to construct nominal AICs in which such adjectival selectional restrictions are violated. In clausal AICs, by contrast, such restrictions may be freely ignored. In (8a) below, 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.⁶ In (8b), 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.

- (8) (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 noun denotations. In this respect, nominal-AIC DPs behave like ordinary predicative DPs in which an attributive adjective modifies the

[6] If *smart* is understood as an indicator of aesthetic worth rather than of mental acuity, then (8a) 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!*

following noun, while clausal AICs behave as if the attributive adjective does not modify the noun at all. The contrast is shown in (9) and (10).⁷

(9) *Nominal AIC*

- (a) That is a **big sparrow** to see in this area. ↯ That is a **big bird** to see in this area.
 (b) That is a **big sparrow**. ↯ That is a **big bird**.

(10) *Clausal AIC*

- (a) That is a good **novel** to read. → That is a good **book** to read.
 (b) That is a **novel**. → 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.

2.3 *Infinitival relative or degree complement?*

One of the most compelling characteristics of nominal AICs, from both a descriptive and a theoretical perspective, is their apparent hybrid nature: nominal-AIC infinitival clauses seem to have properties of both relative clauses and degree complement clauses. This observation applies equally to their syntax and to their semantics. Consider the examples in (11).

- (11) (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 (11c) is the same as that in the ordinary positive in (11a). In both cases, we see the unmarked, morphologically basic form of the adjective, in contrast to the comparative form in (11b), which bears overt degree morphology in the form of the *-er* inflection.⁸ The nominal AIC, however, also contains an infinitival clause that appears to

[7] As an anonymous *JL* referee points out, the inferences in (9) are in fact valid if the comparison class is held constant. The judgments shown in (9) are those obtained when the comparison class for each gradable adjective is determined by the denotation of the noun it modifies, which is the default case; see Section 4.2.1 below for more detailed discussion. For example, (9b) should be understood as stating that something's being big relative to the comparison class of sparrows does not entail that it counts as big relative to the comparison class of birds.

[8] With other adjectives, of course, the comparative may surface as the free morpheme *more*. For present purposes, what is crucial is not simply the morphological form of the adjective but the entire degree + adjective complex. Note that this criterion distinguishes nominal-AIC adjectives from those that occur in equative *as* constructions, as well.

function analogously to the comparative *than* clause in (11b); both clauses provide information about the relevant standard to which *Middlemarch*'s length is compared.⁹ The infinitival clause has no counterpart in the ordinary positive in (11a). The nominal AIC thus seems to be part positive, part comparative; in particular, the infinitival clause appears to have properties of both an ordinary relative clause and a degree complement clause such as a *than* or *as* clause.

Two additional facts suggest connections between nominal AICs and degree constructions. First, nominal AICs may be formed only with gradable adjectives, a property they share with comparatives and other degree constructions. Adjectives that denote absolute, categorical properties, like *American* or *dead*, are infelicitous in nominal AICs, just as they are in comparatives:

- (12) (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 (12c) 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 (12b). Nominal AICs, and the inappropriateness reading that characterizes 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 (13).

- (13) (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 (13) has the inappropriateness reading. (13a) tells us that *Middlemarch* is 700 pages long, and suggests that one ought to assign it – i.e., it has what one might call an exhortative reading – but there is no implication that the book is inappropriately long for the purpose at hand. The facts are analogous for (13b). 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 in (13) preempt the infinitival clauses' ability to provide a standard, with the result that the

[9] Equative *as* clauses and other degree complement clauses are interpreted similarly.

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:¹⁰

- (14) (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 the hybrid nature of the construction. The loss of the inappropriateness reading in such examples suggests a standard-providing role for the infinitival clause in ordinary nominal AICs; if the infinitival clause provides a standard, then it looks much like a degree complement clause. 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 take up the analysis of nominal-AIC infinitival clauses in detail in Section 3.

2.4 *Nominal AICs and too*

I conclude the overview of the basic properties of nominal AICs by pointing 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 (15).

- (15) (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 a gapped infinitival clause; this is in contrast to what we see with comparatives and equatives, where the standard is expressed by a finite clause. While the nominal AIC in (15a) may be less forceful in its assertion of inappropriateness than the *too* construction in (15b), 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 of the attributive *too* construction.

Further consideration shows that the answer must be no. To begin, I note three important syntactic differences between nominal AICs and attributive *too* constructions. First, there is an obvious difference in the surface position

[10] I use predicative comparatives instead of attributive comparatives in (14) because attributive comparatives do not allow the requisite plural inflection on the measure phrase:
 **Middlemarch is a 500-pages-longer book than Pnin is.*

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 & 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 head of this functional projection may optionally be lexicalized as *of*, as shown in (16). No such functional projection is involved in the derivation of nominal AICs, as shown in (17).

- (16) (a) *Middlemarch* is too long (of) a book to assign.
 (b) How long (of) a book is *Middlemarch*?

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

Second, the adjectival complex in a *too* construction may occur after the noun, a configuration that is impossible in nominal AICs, as shown in (18).¹¹

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

Third, nominal AICs differ syntactically from attributive *too* constructions in their failure to license resumptive pronouns in the gap position of the infinitival clause. Consider the contrast in (19).

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

There are likewise important semantic distinctions between nominal AICs and attributive *too*. In particular, these 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 generally entailed. The contrast is particularly salient in the past tense. Consider (20).

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

From the nominal AIC in (20a), 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 (21). The content of the infinitival clause is thus presupposed true.

[11] I thank an anonymous *JL* referee for mentioning this difference between nominal AICs and *too*.

- (21) (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 (20b), by contrast, generally gives rise to an entailment that the book was not assigned.¹² Consider the infelicity of the following: #*Middlemarch* was *too* long a book to assign (it), 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 (22). This is the hallmark of semantic content that is entailed, not presupposed.

- (22) (a) A: *Middlemarch* was not too long a book to assign (it).
 B: Is that why you assigned it?
 (b) A: Was *Middlemarch* too long a book to assign (it)?
 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 (20) and (21) 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 (20b), 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 (15) suggests.

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

[12] 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 (20b) 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 implicature 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 above: *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. For discussion of the variability in the semantic status of *too*'s complement, see Karttunen (1971: 355). (Thanks to Andrew Garrett for bringing this issue to my attention and for providing the course evaluation example, and to an anonymous *JL* referee for pointing out Karttunen's discussion of *too*.)

AICs are sufficiently different from them as to merit independent consideration.

3. NOMINAL-AIC INFINITIVALS ARE RELATIVE CLAUSES

In this section I examine the syntax of nominal AICs. I devote particular attention to the apparent hybrid nature of nominal-AIC infinitival clauses, i.e., to the fact that they seem to have properties of both relative clauses and degree complement clauses, as discussed above in Section 2.3. I show here that they must be analyzed as infinitival relatives, *contra* Fleisher (2009). A wide range of syntactic and semantic phenomena support this conclusion; I focus here on the distribution of nominal-AIC DPs, the scope of quantified DPs in the infinitival clause, and the interpretation of idiom chunks. The syntactic analysis developed here sets the stage for the semantic analysis in Section 4.

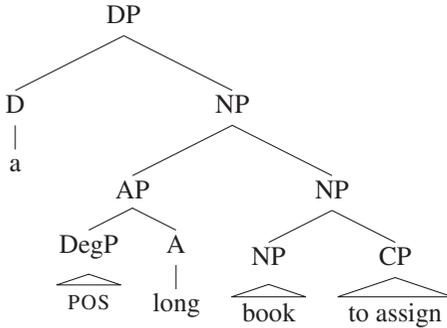
The major syntactic issue at stake in choosing an analysis of nominal AICs is the position of the infinitival clause. The infinitival clause could be adjoined as an infinitival relative to NP or to some higher position within DP; or it could be merged as a complement of the positive degree morpheme, POS, and then extraposed to the right, making it the counterpart of the finite *than* or *as* clause in an ordinary comparative or equative, respectively (assuming the basic correctness of Bresnan's (1973) analysis of comparatives, which most analyses since have followed;¹³ though see footnote 14 below for a caveat). I will refer to the former possibility as the RELATIVE-CLAUSE ANALYSIS and the latter as the DEGREE COMPLEMENT ANALYSIS. The relative-clause analysis countenances a bit more freedom in the placement of the infinitival clause than the degree complement analysis, at least in principle. This clause could be treated as a true infinitival relative, in which case it would be adjoined to the lowest NP (or in some other local configuration with this NP; see Section 3.3); or it could be treated as a gapped infinitival clause that adjoins higher, perhaps above the AP/DegP. I do not believe that much hinges on the specific position of adjunction, as detailed in the discussion of the construction's semantics in Section 4. The crucial syntactic difference between the analyses is a more coarse-grained one: is the infinitival clause an adjunct somewhere within NP/DP (relative-clause analysis) or the extraposed complement of Deg⁰ (degree complement analysis)?¹⁴

[13] This is true even of the novel and somewhat unorthodox analysis of Bhatt & Pancheva (2004), who propose that the *than* clause merges countercyclically as the complement of a raised (and unpronounced) copy of the degree head. Likewise, Kennedy & Merchant (2000: 102), who propose a syntax for attributive comparatives that is slightly different from the one adopted below, assume that the *than* clause merges within DegP before undergoing extraposition to the right of NP.

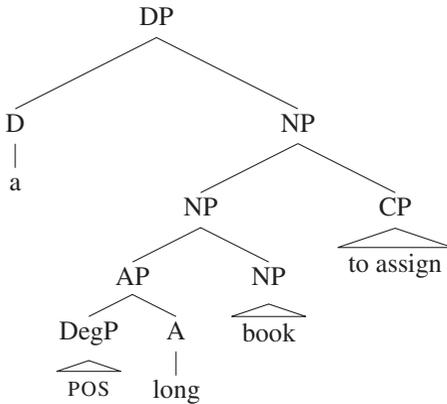
[14] As an anonymous *JL* referee points out, the extraposition analysis of comparative and equative *than* and *as* clauses – and, by extension, its potential analogue in nominal

For the sake of explicitness and for ease of comparison, in (23) I present syntactic trees representing the candidate analyses of nominal AICs discussed immediately above. The first two, (23a, b), are relative-clause analyses; the third, (23c), is the degree complement analysis. These trees are not fully articulated; in particular, the internal structure of the infinitival clause is intentionally set aside for the moment.

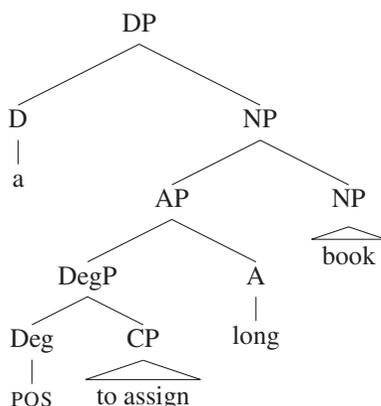
(23) (a) *Relative-clause analysis 1 (adjunction to lowest NP node)*



(b) *Relative-clause analysis 2 (higher adjunction)*



AICs – is unavailable in unification-based theories of syntax that lack movement, such as HPSG. While I assume a movement-based theory in what follows, the basic empirical disanalogies between degree complement clauses and nominal-AIC infinitival clauses discussed below are independent of the syntactic framework chosen. Even if, in an HPSG-like theory, the distinction between the relative-clause analysis and the degree complement analysis is a feature-structural one rather than a phrase-structural one, the distinctions outlined below should favor a syntactic analysis of nominal-AIC infinitival clauses that classes them together with relative clauses rather than with degree complement clauses.

(c) *Degree complement analysis (prior to rightward extraposition of CP)*

I assume a traditional left-adjunction analysis of attributive AP, instead of a structure in which A^0 takes NP as its complement (Abney 1987; for relevant discussion, see Svenonius 1994). I further assume, for explicitness, that DegP sits in SpecAP, rather than in an adjoined position within AP, though the analysis to be presented does not rely on this assumption in any crucial way.¹⁵

3.1 *The distribution of nominal-AIC DPs*

Distributional data support the analysis of nominal-AIC infinitivals as infinitival relatives. 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 relative-clause analysis of nominal AICs proposed here, but not on the degree complement analysis, offering 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 a copular clause. They cannot be construed

[15] 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, 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, however, is not a theoretically innocent 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 (23) 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 .

referentially, and thus are unacceptable in the argument positions of non-copular clauses, where DPs are typically found; this is shown in (24).

- (24) (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 (25) differ from those in (24) only in their lack of attributive adjectives. Meanwhile, such DPs are perfectly fine in the predicative position of a copular clause, as shown in (26).

- (25) (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.
- (26) (a) *Middlemarch* is a book to assign.
 (b) That is a movie for Susan to take her nephew to.
 (c) Bob is a person to hire.

The parallel distribution of nominal-AIC DPs and ordinary indefinite DPs with infinitival relatives is unsurprising on the relative-clause analysis of nominal AICs. 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.¹⁶ These distributional facts would be difficult to account for on the degree complement analysis. As shown in (27), indefinite attributive comparative DPs are felicitous in non-predicative positions, in sharp contrast to the nominal-AIC DPs in (25).

- (27) (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 latter are permitted in non-predicative

[16] An anonymous *JL* referee suggests that the restriction of infinitival relatives to predicative DPs might be taken as evidence that they adjoin not at the NP level but at the DP level: if they are syntactically required to adjoin to a full DP, and if they compose semantically with that DP by intersection, then their distribution will be limited to just those DPs that denote sets of individuals: predicative DPs. While it is certainly possible that the infinitival relative might adjoin at the DP level in certain cases, this cannot be a general solution. The idiom data discussed below in Section 3.3 show that, at least in some cases, the infinitival relative must be analyzed as the complement of D^0 , not as a DP adjunct. Even in such cases, however, the DPs in question remain restricted to predicative positions.

positions while the former are not. The restricted distribution of nominal-AIC DPs thus both supports the relative-clause analysis and casts doubt on the degree complement 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 purpose clauses. These are often indistinguishable on the surface from nominal AICs or other infinitival-relative-containing DPs. Consider the examples in (28).

- (28) (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 (28) appear to violate the distributional restriction discussed above. As discussed by Berman (1974b), however, the infinitival clauses in (28) 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 (28) lack the exhortative reading observed with DPs that contain infinitival relatives, as in (13) above: (28a) 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 (28) must strand the infinitival clause:

- (29) (a) Which book did Bob find to assign?
 (b) #Which book to assign did Bob find?¹⁷

The pattern in (29) makes sense only if we assume that the infinitival clause 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 (30).

- (30) (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 (28b). 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, and expresses no speaker commitment one way or the other as to the appropriateness of

[17] To the extent that (29b) is interpretable, the fronted DP must have the modal, exhortative interpretation that is characteristic of DPs containing infinitival relatives: 'Which book that one ought to assign did Bob find?'. It cannot have the purpose infinitival interpretation seen in (28) and (29a). The fact that this example is at best marginal is, of course, due to the above-mentioned restriction of such DPs to predicative positions.

taking one's nephew to violent movies. 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 (24b) and (25b) are infelicitous: without the purpose infinitival parse, the only remaining interpretation is one in which the infinitival clause adjoins to NP as an infinitival relative, 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 (31), 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. For example, they fail to occur with the definite article in either predicational or specificational copular clauses, as shown in (32).

- (31) (a) #A long book to assign is *Middlemarch*.
 (b) #An old man for them to hire is Bob.
- (32) (a) #Susan is the young sibling to invite.¹⁸
 (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. Attributive comparative DPs, meanwhile, are not restricted in the same way. These facts support the relative-clause analysis of nominal AICs and cast doubt on the degree complement analysis.

3.2 *Scope of quantifiers in the infinitival clause*

Nominal AICs fail to exhibit scopal interactions that are characteristic of ordinary comparatives; such interactions are not expected on the relative-clause analysis. It is well known that quantificational 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 (absent contrastive

[18] 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'.

emphasis on the DP in question; see below). The degree complement 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 relative-clause analysis.

The examples in (33) illustrate the phenomenon in question (Larson 1988, Schwarzschild & 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 (34) 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 (34) that all of, or at least two of, John’s friends are men; for discussion, see Bresnan 1975.)

- (33) (a) John is taller than every girl is.
 $\forall x[\mathbf{girl}(x) \rightarrow \text{John's height} > x\text{'s height}]$
 (b) John is taller than exactly two girls are.
 $|\lambda x.\mathbf{girl}(x) \wedge \text{John's height} > x\text{'s height}| = 2$
- (34) (a) John is a taller man than all of his friends are.
 $\mathbf{man}(\text{John}) \wedge \forall x[\mathbf{friend}(x) \rightarrow \text{John's height} > x\text{'s height}]$
 (b) John is a taller man than exactly two of his friends are.
 $\mathbf{man}(\text{John}) \wedge |\lambda x.\mathbf{friend}(x) \wedge \text{John's height} > x\text{'s height}| = 2$

Example (33a) means that John is taller than the tallest girl. This intuition is captured by the semantic representation sketched for (33a), 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 (33) and (34) is surprising, given the syntactic structure of the sentences. Ordinarily, such quantificational elements scope no higher than the clause that immediately contains them. Schwarzschild & 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.

On the degree complement analysis of nominal AICs, we would be led to expect the same scopal behavior for quantificational DPs in nominal AICs, as on this analysis nominal-AIC infinitival clauses merge in the same

syntactic position as comparative *than* clauses. The examples in (35) below demonstrate that this is clearly not the case. Note that, as above, the semantic representations in (35) are incomplete, and are intended to show the scopal relationships between the positive morpheme and quantificational elements within the infinitival clause. I use the expression $\text{MAX}(\lambda d \dots \text{to-read}(a \text{ } d\text{-long book})\dots)$ as a place-holder to indicate the maximal degree of length – i.e., the standard of length – for what one can reasonably be expected to read; for more on maximality in standards of comparison, see von Stechow (1984) and Rullmann (1995). The symbol $>!$ indicates the ‘significantly exceeds’ relation proposed for positives by Fara (2000). A detailed compositional semantics for nominal AICs will be given in Section 4.

- (35) (a) *Middlemarch* is a long book for every student to read.
 M 's length $>!$ $\text{MAX}(\lambda d. \forall x[\text{student}(x) \rightarrow \text{to-read}(a \text{ } d\text{-long book})(x)])$
 ‘*Middlemarch* is longer than what one can reasonably expect all of the students to read.’
- (b) *Middlemarch* is a long book for more than two students to read.
 M 's length $>!$ $\text{MAX}(\lambda d. |\lambda x. \text{student}(x) \wedge \text{to-read}(a \text{ } d\text{-long book})(x)| > 2)$
 ‘*Middlemarch* is longer than what one can reasonably expect (any group of) 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. The sentence in (35a) 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 (35b) 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 group of) more than two students to read a d -long book. Crucially, the sentence does not mean that, for some group 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 degree complement analysis of nominal AICs. If nominal-AIC infinitival clauses

are structurally analogous to finite *than* clauses – that is, if they merge as complements of Deg⁰ – then they should participate in the kinds of scopal interactions observed for comparative *than* clauses. On the relative-clause analysis of nominal AICs, by contrast, the restriction to surface scope is a natural consequence of the merge position of the infinitival clause. This clause is interpretable in its base position, adjoined to NP, and therefore is not subject to QR for interpretation.¹⁹

There is, however, at least one exception to the generalization that quantificational DPs in nominal AICs always take surface scope. With focal emphasis, individual DPs may take wide scope with respect to the positive degree morpheme. Compare example (36) to (35a) above; emphasis is indicated in (36) by capitalization.

- (36) *Middlemarch* is a long book for EVERY student to read.
 $\forall x[\text{student}(x) \rightarrow M\text{'s length} > ! \text{MAX}(\lambda d.\text{to-read}(a\ d\text{-long book})(x))]$
 ‘*Middlemarch* is longer than what one can reasonably expect any of the students to read.’

Focal emphasis on the determiner *every* in (36) allows the DP *every student* to take wide scope 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 morpheme. 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 (35a) and (36). 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 (33) and (34), by contrast, require no such focal emphasis.

The scopal relationship between nominal-AIC infinitival clauses and the positive morpheme thus argues against the degree complement analysis of

[19] As discussed by Heim (2006), in some cases quantificational DPs within comparative *than* clauses take narrow scope with respect to the comparative operator, just like quantificational DPs in nominal-AIC infinitival clauses. The fact that nominal-AIC infinitival clauses never take wide scope, however, clearly sets nominal AICs apart from comparatives.

nominal AICs. In combination with the facts discussed in the previous subsection, this weighs heavily in favor of the relative-clause analysis.

3.3 *Relative-clause structure and idiom interpretation*

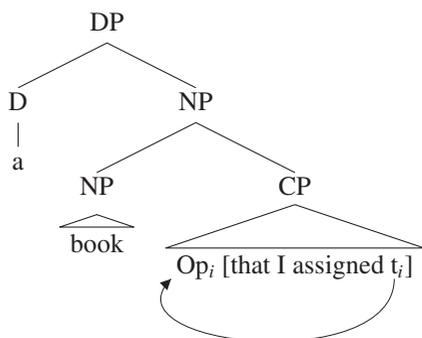
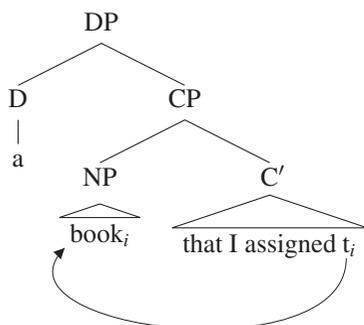
Finally, evidence from the interpretation of idioms in nominal AICs suggests that we must adopt the relative-clause analysis of their syntactic structure. Nominal AICs may involve displaced idiom chunks; specifically, certain idiom chunks may serve as the head of a nominal-AIC relative clause. On standard generative assumptions about the syntax of idioms, this means that a head-internal analysis of such relative clauses must be available. For the relative-clause analysis sketched above, this is a straightforward amendment; for the degree complement analysis, it is a structural impossibility. As I show in this section, the difference in the external syntax of the infinitival clause on the two analyses constrains the possible analyses of its internal syntax, with the idiom data favoring the relative-clause analysis.

Relative clauses have been analyzed as both head-external and head-internal in the generative syntactic literature. The locus classicus of the head-external analysis is Chomsky (1977). On this analysis, a null operator merges in the position of the relative-clause gap and undergoes A'-movement to SpecCP. The head of the relative clause merges outside the relative clause, and the relative clause right-adjoins to this NP. Head-internal analyses come in at least two flavors; of primary interest here is the 'raising' analysis of restrictive relatives, on which the relative-clause head originates in the gap position and raises to SpecCP; the relative-clause CP itself serves as the complement of a determiner.²⁰ 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 head-external and raising analyses of the internal syntax of restrictive relatives are sketched in (37), for the relative clause *a book that I assigned*.²¹

[20] The other well-developed head-internal analysis is the 'matching' analysis, which posits both clause-internal and clause-external copies of the relative-clause head; for discussion, see Carlson (1977) and Hulsey & Sauerland (2006). I set aside the matching analysis here, as it is not implicated in the analysis of idioms, and it is sufficient for our purposes to demonstrate the indispensability of any head-internal analysis for dealing with nominal AICs.

[21] Note that the raising structure in (37b) is the one proposed by Kayne (1994) and adopted by Hulsey & 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 D⁰: [DP D_{REL} *book*].

(37) (a) *Head-external analysis*(b) *Raising analysis*

It is immediately apparent that the head-external and raising analyses do not fit equally well into the relative-clause and degree complement analyses of the syntax of nominal AICs. In the relative-clause analysis shown above in (23a), the infinitival clause and the NP *book* form a single NP constituent. The relative-clause analysis of nominal AICs is thus compatible with both the head-external and the raising analyses outlined above (although the CP is adjoined to NP in that tree, nothing would prevent the head noun from merging inside the relative clause and raising to SpecCP).²² The degree complement analysis, sketched in (23c), is compatible only with the head-external analysis. The infinitival clause merges as the complement of Deg⁰ 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.

[22] Note in addition that on the raising analysis the attributive AP must 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 relative-clause analysis. It is further supported by the availability of nominal AICs in which the gradable adjective is part of an idiom chunk, as in (38c) below.

With these restrictions in mind, let us now turn to the idiom data. Nominal AICs in which an idiom chunk serves as the head of the infinitival relative clause are indeed grammatical, as shown in (38). If Bianchi (1999: 43–45) is correct that idiom-chunk relative-clause heads require the raising analysis of relative clauses, then these data provide strong support for the relative-clause analysis of nominal AICs.

- (38) (a) That is a delicate **nerve** to **touch**.
 (b) That is a big **albatross** to **have around your neck**.
 (c) That is a **hard bargain** for you to **drive** with someone in such dire need.²³

The VPs *touch a nerve*, *have an albatross around [one's] neck*, and *drive a hard bargain* have non-compositional, idiomatic meanings which are commonly thought to arise only when the verb and its arguments are merged into the derivation together.²⁴ 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. Under these assumptions, and given the acceptability of the idiom-chunk nominal AICs in (38), we must choose the relative-clause analysis of nominal AICs, as it is the only one compatible with a raising analysis for relative clauses. The idiom-chunk nominal AICs cast serious doubt on the viability of the degree complement analysis sketched in (23c), as this analysis does not allow the raising structure required for idiom interpretation.

Note that this does not mean that the raising analysis must be employed for all nominal-AIC infinitival clauses. As mentioned above, the relative-clause analysis of nominal AICs is compatible with both the head-external and raising approaches to relative-clause-internal syntax. The relative-clause analysis of nominal AICs is likewise compatible with many different positions of adjunction for the relative clause itself, as discussed at the beginning of Section 3 and in footnote 16. Moreover, a one-size-fits-all approach to relative clauses has been argued to be inappropriate by Hulsey & Sauerland (2006), who propose that at least the matching and raising structures must be available. With the exception of the idiom cases, the nominal-AIC data do not compel a choice among the various structural possibilities in particular

[23] Note that the adjective *hard* in this example yields a nominal-AIC reading, not a clausal-AIC reading. The sentence means that the bargainer was inappropriately harsh in his dealings with his needy co-bargainer, not that the bargain in question was difficult for him to make.

[24] For a defense of the compositionality of idioms, and a sustained critique of the Principles and Parameters approach to their structure and interpretation, see Nunberg, Sag & Wasow (1994).

examples, and it is not clear to me that it is necessary or appropriate to designate one of them as the unique structure for nominal-AIC infinitival clauses. In proposing the relative-clause analysis, I thus advocate not a single structure for nominal-AIC infinitivals, but a family of related relative-clause structures.

4. THE SEMANTICS OF NOMINAL AICs

In this section I present a semantic analysis of nominal AICs. As we will see, the semantic analysis proposed here, in tandem with the syntactic analysis discussed in Section 3, allows us to derive the inappropriateness reading of nominal AICs compositionally. 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 likewise explains 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 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 NP denotation in nominal AICs.

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 Deg⁰ heads like *more/-er* to involve simple comparison of degrees, rather than quantification over sets of degrees. Such an approach is satisfactory for nominal AICs, as there are no scopal interactions between the positive Deg⁰ head *pos* and other quantificational elements that might require an analysis involving degree quantification (as discussed above in Section 3.2).

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) degrees on a semantic scale.²⁵ For example, the gradable predicate *tall* relates its subject to a degree 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 *simpliciter* 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 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* thus yields the degree of Bob's height. Deg⁰ 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 (39). 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 (40). (In fact, as proposed by Fara (2000) and Kennedy (2007), it must exceed the standard by a 'significant' amount; this is indicated by the symbol $>!$ in (40).)

(39) $\llbracket \textit{Bob is taller than Susan is} \rrbracket = \mathbf{tall}(\textit{Bob}) > \mathbf{tall}(\textit{Susan})$

(40) $\llbracket \textit{Bob is tall} \rrbracket = \mathbf{tall}(\textit{Bob}) >! d_{\text{STND}}$

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.

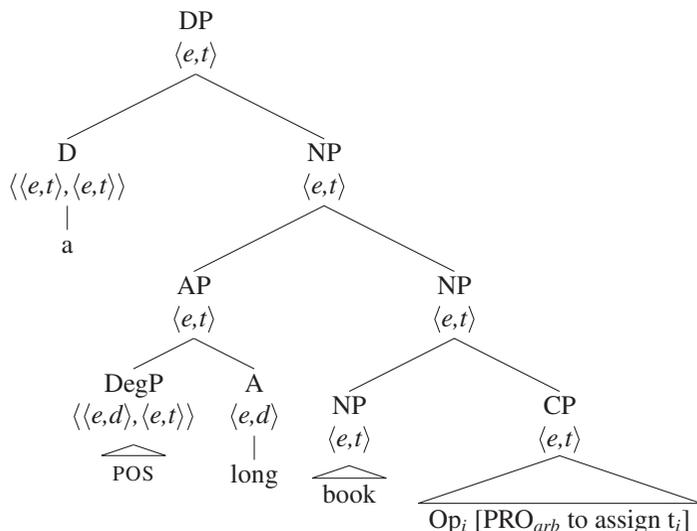
4.2 Composing nominal AICs

In this section I propose a compositional analysis of the predicative DP in a nominal AIC. I will assume, for simplicity, that the meaning of the larger sentence containing such a DP is derived by composing the matrix subject meaning directly with that of the predicative DP, which denotes a property

[25] 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.

of individuals (i.e., I follow Heim & Kratzer (1998: 62) in proposing that, in predicative DPs, the indefinite article denotes the identity function on properties). For reference, a type-adorned tree representing the predicative DP is shown in (41). Sister nodes compose by function application, with two exceptions: (i) the NP *book* and the infinitival CP, and (ii) the AP and its NP sister, both of which pairs combine by intersection.

(41)



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 clause for the moment. The order of composition is straightforward: as shown in the tree in (41), the Deg^0 head *POS* composes by function application with the adjective *long*, and the resulting AP then combines by intersection with its NP sister, which for the moment is simply *book*. Lexical entries for the latter two are likewise straightforward, as shown in (42a, b). The only complication is the lexical entry for *POS*: while the degree comparison relation that it expresses is clearly the ‘significantly exceeds’ relation, $>!$, 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* is shown in (42c), with full composition and truth conditions for the sentence *Middlemarch is a long book* shown in (43).²⁶

[26] Here and in what follows, I adopt a direct-translation approach to the interpretation of lexical items and syntactic structures. For concision, I use a typed lambda calculus as the metalanguage for expressing truth conditions (not, e.g., as an intermediate step in the

- (42) (a) $\llbracket long \rrbracket = \lambda x_e. \mathbf{long}(x)$
 (b) $\llbracket book \rrbracket = \lambda x_e. \mathbf{book}(x)$
 (c) *First attempt*
 $\llbracket POS \rrbracket = \lambda G_{\langle e, d \rangle} \lambda x_e. G(x) >! d_{STND}$
- (43) (a) *Composition of DegP and A (function application)*
 $\llbracket POS long \rrbracket = \llbracket POS \rrbracket (\llbracket long \rrbracket) = \lambda x_e. \mathbf{long}(x) >! d_{STND}$
 (b) *Composition of AP (43a) and NP (42b) (intersection)*
 $\llbracket POS long book \rrbracket = \lambda x_e. \mathbf{long}(x) >! d_{STND} \wedge \mathbf{book}(x)$
 (c) *Composition of full sentence (function application)*
 $\llbracket Middlemarch is a long book \rrbracket = \llbracket POS long book \rrbracket (\llbracket Middlemarch \rrbracket) =$
 $\mathbf{long}(Middlemarch) >! d_{STND} \wedge \mathbf{book}(Middlemarch)$

This first attempt at describing the meaning of POS yields a reasonable result. The truth conditions in (43c) state that *Middlemarch's* length exceeds d_{STND} and that *Middlemarch* is a book; this captures the major meaning characteristics of the sentence *Middlemarch is a long book*, namely the degree comparison relation and the nominal predication. The principal deficiency of (43c), and in turn of the lexical entry in (42c), is the failure to describe the standard of comparison in any interesting way.

In order to derive a standard of comparison more enlightening than the place-holder d_{STND} , we must add two elements to the analysis. The first addition is 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, $s(\mathbf{long})$ yields a standard of length. The second addition is the ability to restrict the domain of s 's argument. For example, in order to specify a standard of length for books, we restrict the domain of \mathbf{long} so as to consider only the lengths of things that are books, and then let this serve as the argument of the standard-identification function: $s(\lambda x_e: \mathbf{book}(x). \mathbf{long}(x))$.

The ability to restrict the domain of s 's argument is crucial for determining the relevant standard of comparison. If we were simply to replace d_{STND} in (43) with the unrestricted $s(\mathbf{long})$, the truth conditions would state that *Middlemarch's* length exceeds a standard of length. These truth conditions are in fact no different from those already specified in (43c): d_{STND} in (43) cannot fail to be a standard of length. This is because the degrees that Deg⁰

interpretation process itself). The metalanguage expression in (42a) is equivalent to the English metalanguage expression ‘the function f of type $\langle e, d \rangle$ such that $f(x) = x$'s length’; that in (42b) is equivalent to ‘the function f of type $\langle e, t \rangle$ such that $f(x) = 1$ iff x is a book’; and so on. Unfamiliar symbols are defined as they are introduced. I offer a plain English paraphrase of truth conditions in cases where the complexity of the metalanguage expression warrants it.

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). Domain restriction of the argument of *s*, by contrast, allows us to fix a more contextually appropriate standard, e.g., a standard of length for books in the example under consideration.

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 in 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 (44) as an illustration. (For relevant discussion, see also Siegel 1976: 72ff.)

- (44) 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 (44), 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 for cars in general, according to which all BMWs count as expensive.

These facts are important to bear in mind as we consider how best to revise our lexical entry for *pos*. In particular, they suggest that domain restriction of the standard-identification function *s* must be accomplished not via semantic composition, but rather via pragmatic, contextual determination of an appropriate property to serve as domain restrictor. In most cases this property will simply be the property denoted by the adjacent noun. 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). Examples like (44) remind us that while domain restriction by the modified noun is the norm, it is not a mechanistic, exceptionless phenomenon, and thus should not be built directly into the meaning of *pos*. Instead, I propose that the lexical entry for *pos* contains a contextually determined domain restrictor property *R*, a free variable whose value is filled in on the fly, in context. The revised lexical entry for *pos* is shown in (45); composition of the full sentence *Middlemarch is a long book* is shown in (46) (cf. (43c) above).

- (45) *Revised lexical entry for pos*
 $\llbracket \text{pos} \rrbracket = \lambda G_{\langle e,d \rangle} \lambda x_e. G(x) > ! s(\lambda y_e: R(y). G(y))$

- (46) (a) *Full sentence composition*
 $\llbracket \text{POS } \textit{long} \textit{book} \rrbracket (\llbracket \textit{Middlemarch} \rrbracket) =$
 $\mathbf{long}(\textit{Middlemarch}) >! \mathbf{s}(\lambda x_e: R(x).\mathbf{long}(x)) \wedge \mathbf{book}(\textit{Middlemarch})$
- (b) *With NP denotation as value for R*
 $\mathbf{long}(\textit{Middlemarch}) >! \mathbf{s}(\lambda x_e: \mathbf{book}(x).\mathbf{long}(x)) \wedge \mathbf{book}(\textit{Middlemarch})$

The full sentence composition is shown in (46a), with the value for R as yet undetermined. If R gets its value from the denotation of the NP modified by positive *long*, as will normally be the case, then the interpretation of the sentence ends up as shown in (46b); i.e., the sentence is true iff *Middlemarch*'s length significantly exceeds the standard of length for books, and *Middlemarch* is a book.

Note that the conjunction in the truth conditions proposed here is a result of the intersective analysis of the AP–NP composition (as shown above in (43b)). While intersective analyses are not appropriate for certain well-known classes of adjectives, adjectives that occur in nominal AICs seem always to be interpreted in this way. That is, an intersective analysis of the AP–NP composition captures the fact that the matrix subject of a nominal AIC is invariably asserted to belong to the category denoted by the matrix NP. There are no nominal AICs built from adjectives like *fake* or *alleged*, which, when combined with an NP denotation, return a property whose membership is (or at least may be) disjoint from that of the NP property. An intersective analysis of the AP–NP composition thus does not run afoul of the adjectival semantics.

4.2.2 Adding the infinitival relative

We can now take the basic semantics for attributive positives developed in the previous subsection and use it to analyze nominal AICs. Recall from the discussion in Section 3 that a nominal AIC is an attributive positive that contains an infinitival relative clause adjoined within NP; this is the structure shown in the tree in (41). With the lexical entry for *pos* fixed as in (45), all that remains for us is to consider the effect of the infinitival relative on the denotation of the NP node that combines with AP, i.e., the node whose denotation typically serves as the value for R , the domain restrictor of the standard-identification function \mathbf{s} in attributive positives.

The structure of the infinitival relative is straightforward. For simplicity and clarity of exposition, I adopt the traditional, head-external analysis of relative clauses (Chomsky 1977). On this analysis, a [+*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 (41).²⁷

The semantics of the infinitival clause itself 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 $\lambda x_e \lambda y_e. \mathbf{to-assign}(x)(y)$ for the infinitival verb *assign*. Furthermore, in our parade example, *Middlemarch is a long book to assign*, I represent the arbitrary PRO_{arb} subject of the infinitival clause with the individual constant **a**.²⁸ The denotations of the bare NP, its CP adjunct, and the larger NP that they form are shown in (47).

- (47) (a) $\llbracket \text{book} \rrbracket = \lambda x_e. \mathbf{book}(x)$
 (b) $\llbracket \text{Op}_i [\text{PRO}_{arb} \text{ to assign } t_i] \rrbracket = \lambda x_e. \mathbf{to-assign}(x)(\mathbf{a})$
 (c) $\llbracket \text{book} [\text{Op}_i [\text{PRO}_{arb} \text{ to assign } t_i]] \rrbracket = \lambda x_e. \mathbf{book}(x) \wedge \mathbf{to-assign}(x)(\mathbf{a})$

The expression in (47c) is the denotation of the NP that combines with the positive AP. As described in the previous subsection, this NP denotation is a highly salient one at the point of interpreting POS, and so under ordinary circumstances it is the contextually determined value for *R*, restricting the domain of the gradable predicate that is the input to the standard-identification function *s*. It is likewise predicated of the matrix subject, and the resulting proposition is conjoined with the comparison relation. The resulting truth conditions for the nominal AIC are shown in (48).

- (48) (a) *Full sentence composition*
 $\llbracket \text{POS } \text{long book to assign} \rrbracket (\llbracket \text{Middlemarch} \rrbracket) =$
 $\mathbf{long}(\text{Middlemarch}) >! \mathbf{s}(\lambda x_e: R(x). \mathbf{long}(x)) \wedge \mathbf{book}(\text{Middlemarch}) \wedge$
 $\mathbf{to-assign}(\text{Middlemarch})(\mathbf{a})$
 (b) *With NP denotation as value for R*
 $\mathbf{long}(\text{Middlemarch}) >! \mathbf{s}(\lambda x_e: \mathbf{book}(x) \wedge \mathbf{to-assign}(x)(\mathbf{a}). \mathbf{long}(x)) \wedge$
 $\mathbf{book}(\text{Middlemarch}) \wedge \mathbf{to-assign}(\text{Middlemarch})(\mathbf{a})$

[27] Note that the tree in (41) exemplifies the variant of the relative-clause analysis shown in (23a) above, in which the infinitival CP adjoins to the lowest NP node. Adjunction of CP to the higher NP, as in (23b), would likewise be interpretable via intersection, with the truth conditions coming out the same in both cases. The semantic analysis developed here is thus compatible with either of the relative-clause structures in (23). As I show immediately below, however, the domain restriction that is crucial for deriving the inappropriateness reading of nominal AICs comes about when *R* gets its value from the denotation of the combined NP-CP constituent. This domain restriction is more straightforwardly derivable with the relative-clause structure in (23a) than with that in (23b), and so I will henceforth assume the former structure. Given a suitably flexible pragmatic means for contextually fixing the value for *R*, nothing in principle prevents us from adopting an analysis like the one in (23b); but in the absence of any independent syntactic evidence in its favor, I will set this structure aside for the remainder of the paper.

[28] This is a simplification: PRO_{arb} is clearly interpreted not as an individual but as, e.g., a variable bound by a generic operator. The details, I believe, can safely be set aside for purposes of the present discussion.

The nominal-AIC meaning shown in (48b) is structurally parallel to the ordinary attributive positive meaning in (46b). The lone difference is that all occurrences of the simple NP denotation, $\lambda x_e.\mathbf{book}(x)$, have been replaced by the combined denotation of the NP and the infinitival relative, $\lambda x_e.\mathbf{book}(x) \wedge \mathbf{to-assign}(x)(a)$. Most important for our purposes is the difference this causes for the computation of the standard of comparison. For the attributive positive in (46), 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 (48), we restrict the domain of the gradable predicate to just those entities that are books and that also satisfy the theme role of the infinitival predicate, as shown in the expression $s(\lambda x_e: \mathbf{book}(x) \wedge \mathbf{to-assign}(x)(a). \mathbf{long}(x))$ in (48b). I now turn to a more detailed examination of the semantics of the infinitival clause in order to demonstrate what this standard means and how it helps us derive the inappropriateness reading of nominal AICs.

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 bouletic modality, adopting a well-established approach to the semantics of infinitival relatives (Kratzer 1981, 1991; Hackl & Nissenbaum 2003). This modal interpretation, in combination with the comparison relation expressed by *pos*, gives rise to the inappropriateness reading.

Recall from our earlier discussion that one of the most salient interpretive features of nominal AICs is the sense of unexpectedness or inappropriateness associated with the construction. When we say that *Middlemarch* is a long book to assign, we understand that it is unexpected or inappropriate for *Middlemarch* to be assigned; *Middlemarch* is unexpectedly or 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 a 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 bouletic modal ordering

source (Kratzer 1981, 1991; Hackl & Nissenbaum 2003).²⁹ 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 bouletic modal, which specifies a modal ordering source, BOUL ; when supplied with a world argument, it specifies a set of propositions – in this case, those consistent with what is likely, reasonable, permissible, or desirable – and imposes a partial ordering on the set of accessible worlds (the modal base) based on their compatibility with that set of propositions. For the proposition p that results from saturating the infinitival relative clause, this modal tells us that p is significantly more compatible with the bouletic ideal than the relevant standard. Formally, this is implemented by stating that the most $\text{BOUL}(w)$ -compatible world in which p is true is significantly more compatible with the ideal in w than the standard for most- $\text{BOUL}(w)$ -compatible worlds in which other possible propositions resulting from saturation of the infinitival relative clause are true.

Our place-holder expression **to-assign**, shown in (49a), can now be rewritten as in (49b). As the intensional interpretation in (49b) involves a comparison of best worlds with respect to the ordering source $\text{BOUL}(w)$, I have abstracted out a ‘best world’ function, \mathcal{BW} , in order to make the truth conditions in (49b) a bit clearer.³⁰ (The symbol $<!$ indicates the ‘is significantly more compatible with’ relation between worlds with respect to a given ordering source, indicated by the subscript; cf. the use of the symbol \leq in Kratzer 1981.)

- (49) (a) *Extensional*
 $\llbracket \llbracket_{\text{CP}} \text{PRO}_{arb} \text{ to assign} \rrbracket \rrbracket = \lambda x_e. \text{to-assign}(x)(\mathbf{a})$
 (b) *Intensional*
 $\llbracket \llbracket_{\text{CP}} \text{PRO}_{arb} \text{ to assign} \rrbracket \rrbracket =$
 $\lambda w_s \lambda x_e. \mathcal{BW}(w)(\text{assign})(x)(\mathbf{a}) <!_{\text{BOUL}(w)} \mathbf{s}^*(\lambda y_e. \mathcal{BW}(w)(\text{assign})(y)(\mathbf{a}))$

[29] In fact, the modality associated with nominal-AIC infinitivals may be somewhat broader than suggested by the term ‘bouletic’. In many cases, nominal-AIC modality seems only indirectly to indicate what is desirable, often through an indication of what is normal or expected (as in *Middlemarch is a long book to assign*, where we have a clear sense that the book is longer than normal or appropriate, and thus longer than desirable, for present purposes). For concision and consistency with earlier approaches to the modality of infinitival relatives (e.g., Hackl & Nissenbaum 2003), I will continue to refer to nominal-AIC modality as bouletic, but with the proviso that this should be understood as a cover term for a modality that is perhaps broader.

[30] The function \mathbf{s}^* in (49b) is a standard-identification function that operates on worlds instead of degrees. The ‘best world’ function, \mathcal{BW} , picks out the world most compatible with our ordering source, $\text{BOUL}(w)$, in which a given proposition is true. It is a placeholder for the following more complex expression:

$$\lambda w_s \lambda P_{\langle s, \langle e, \langle e, t \rangle \rangle \rangle} \lambda x_e \lambda y_e. \iota w'_s [w' \in \lambda u_s. P(u)(x)(y) \wedge \forall w'' [w'' \in \lambda u_s. P(u)(x)(y) \rightarrow w' \leq_{\text{BOUL}(w)} w'']]$$

If one wishes to avoid the assumption that there is a unique best world as defined here, one might propose instead that for all worlds of standard/average compatibility with our ordering source, there is some significantly more compatible world in which the proposition in question is true.

Paraphrased in English, the truth conditions in (49b) state that the infinitival CP *to assign* denotes the function f such that $f(w)(x) = 1$ iff the world most consistent with $\text{BOUL}(w)$ in which one assigns x is significantly more consistent with $\text{BOUL}(w)$ than the standard for most-consistent-with- $\text{BOUL}(w)$ worlds in which one assigns something. Note that this is precisely the interpretation we find for exhortative infinitival relatives, as well: in the sentence *Middlemarch is a book to assign*, we understand that assigning *Middlemarch* is significantly more consistent with the bouletic ideal than the standard for assigning books (leaving open the possibility, of course, that it may be even better to assign some other book). There is thus independent support for adopting the infinitival-relative interpretation shown in (49b).

The modalized expression shown in (49b) takes the place of **to-assign** in the composition of the nominal AIC. Importantly, this means that the contextually salient NP denotation that serves as the value for R (the domain restrictor for the standard-identification function s , discussed above) now contains a modal component. The full NP denotation – i.e., the intersection of the lower NP denotation and the adjoined infinitival CP denotation – is shown in (50).

$$(50) \llbracket \text{book} [Op_i [PRO_{arb} \text{ to assign } t_i]] \rrbracket = \lambda w_s \lambda x_e \mathbf{book}(w)(x) \wedge \\ \mathcal{BW}(w)(\mathbf{assign})(x)(\mathbf{a}) < !_{\text{BOUL}(w)} \mathbf{s}^m(\lambda y_e. \mathcal{BW}(w)(\mathbf{assign})(y)(\mathbf{a}))$$

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, what one wants to be the case, or other situations specified by a bouletic modal ordering source. Note in addition that the base world for the modal is the same as the world of evaluation for the nominal 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 NP 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**, we derive the inappropriateness reading of nominal AICs in a straightforward way. The 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 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 unusual, unexpected, or inappropriate about the entity in question (or, more specifically, about its length or whatever other gradable property is involved) for the purpose at hand. Note that, depending on the context and the particular adjective and infinitive chosen, the interpretation in question may be closer to unexpectedness than to actual inappropriateness: an anonymous *JL* referee suggests the example *She's a young woman to be elected Senator*, which seems to convey surprise or unexpectedness rather than disapprobation. Given a suitably broad interpretation of the infinitival-relative modality (see footnote 29) and of the modalized standards that result from it, it should not be surprising to find just this sort of variation along the unexpectedness–inappropriateness spectrum. In all such cases, the interpretation in question arises naturally from the interaction between the comparison relation expressed by *POS* 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 (13). 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.³¹ 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 clause cannot perform the domain restriction that influences the standard of comparison and thus 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 clause on the standard of comparison.

As an additional note on the composition of the infinitival clause, it is possible that the bouletic modal ordering source is a modal default associated with the complementizer *for* that heads the infinitival clause. First, we may note 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.

[31] Moreover, the relevant degree comparison is ‘greater than or equal to’ rather than ‘significantly exceeds’. Svenonius & Kennedy (2006) treat such examples as involving a degree head, *MEAS*, that is distinct from *POS*.

Kiparsky & Kiparsky (1970: 169) identify the quality associated with *for* as ‘emotivity’, writing, ‘[e]motive 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 this aspect of the meaning of the complementizer *for* has been recognized at least since the work of Jespersen. The modal interpretation associated with nominal-AIC infinitival clauses 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 bouletic 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* and the modalization of the standard of comparison. A book that significantly exceeds the standard of length for books that get assigned in worlds conforming to what is likely to be the case, what is typically the case, what might reasonably be the case, what one wants to 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* and the modality of the infinitival relative clause. The fact that our analysis captures the inappropriateness interpretation in an independently motivated and compositional way lends strong support to the approach to nominal AICs developed here.

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 2.4.

Recall from the truth conditions for the nominal AIC *Middlemarch is a long book to assign*, repeated below in (51), that the intersective/conjoined NP-plus-CP denotation appears in two places:

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

Here we have a conjunction of the NP meaning (**book**) and the infinitival-clause 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 interpretation 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 clause 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 2.4, 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:

- (52) (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 the analysis advanced here, appears to receive empirical support from the data in (52). I leave a more detailed semantic analysis of this past-tense paradigm to future research, but for now I believe that having the infinitival modality involved in the main sentence predication does not yield a semantically incorrect meaning for nominal AICs.

5. SUMMARY AND DISCUSSION

I have examined nominal AICs from both a descriptive and a theoretical point of view, showing 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 grammatical building blocks combine in a straightforward and compositional manner to form nominal AICs. Most importantly, I have shown how the inappropriateness reading that characterizes nominal AICs is derived from the interaction between the modality of the infinitival clause and the degree comparison relation expressed by the positive degree morpheme; of particular importance is the role of the former in restricting the domain of the gradable predicate used to compute the standard of comparison associated with the latter. 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 – is, I believe, a major point in favor of the analysis and the general approach to nominal AICs advanced here.

Nominal AICs may shed some useful light on the way in which the comparison class associated with a gradable attributive adjective is influenced by the modified NP. The analysis of nominal AICs proposed here emphasizes the importance of pragmatics and context in the interpretation of attributive adjectives. While I have focused throughout on the nominal-AIC reading of sentences like *Middlemarch is a long book to assign*, it is of course perfectly possible to read such a sentence with an exhortative interpretation, in which the infinitival relative plays no role in determining the comparison class or influencing the standard of comparison. On this reading, the sentence states that *Middlemarch* is a long book and that one ought to assign it. I am unaware of any syntactic diagnostic that differentiates the nominal-AIC and exhortative readings; we seem simply to have two interpretations for one and the same syntactic

structure.³² The analysis proposed here relies crucially on contextual determination of the value of the domain-restrictor property *R* in order to capture this interpretive difference: on the nominal-AIC reading, the infinitival relative participates in fixing the value for *R*, and thus in determining the standard of comparison, while on the exhortative reading it must not. The highly context-dependent determination of comparison class and standard of comparison seen for attributive adjectives here contrasts sharply with the behavior of predicative adjectives with *for*-phrases. Kennedy (2007) shows that the NP in such a phrase always determines the comparison class when it occurs with a predicative adjective: in the sentence *Middlemarch is long for a 19th-century novel*, the standard of comparison cannot fail to be a standard of length for 19th-century novels. Whereas English has a means for semantically, mechanistically determining the comparison class for predicative adjectives – the *for*-phrase – there appears to be no equivalent means for attributive adjectives. The fact that the structures that support nominal-AIC interpretations also support other readings underlines the essentially pragmatic nature of comparison-class and standard determination for attributive adjectives in English.

Nominal AICs may also prove useful for exploring the behavior of different classes of gradable adjectives in the positive degree. As discussed by Kennedy & McNally (2005), the default interpretation of a positive gradable adjective depends on the structure of the semantic scale associated with it. For adjectives with open-ended scales, such as *tall* and *long*, the standard of comparison is always determined contextually; for adjectives whose scales are closed at one end, such as *dirty* and *pure*, the default standard of comparison is the closed scalar endpoint (i.e., minimal dirtiness or complete purity). All of the adjectives used in the nominal-AIC examples above have open-ended scales. Interestingly, adjectives with scales that are closed at one or both ends differ in their acceptability in nominal AICs. Adjectives like *dirty*, whose scales have a closed minimum and an open maximum, tend to be more acceptable in nominal AICs than those like *pure*, whose scales have an open minimum and a closed maximum. (Judgments are somewhat less clear for adjectives whose scales are closed at both ends, like *full* and *empty*.) Consider the examples in (53).

- (53) (a) That is a dirty sponge to wipe the table with.
 (b) #That is pure gold to use for costume jewelry.

The standard of comparison that is set by the NP and infinitival relative on the nominal-AIC interpretation falls somewhere between the endpoints of

[32] Or, perhaps better, for one and the same set of possible syntactic structures; see the discussion of the various syntactic possibilities for the relative-clause analysis sketched above in Section 3.

the scale in question. This means that the standard is higher than the scalar-minimum default standard associated with positive *dirty* in (53a), but lower than the scalar-maximum default standard associated with positive *pure* in (53b). For some reason, the nominal-AIC standard is able to trump the default positive standard in the former case but not the latter. Detailed investigation of this issue must await future research; for now it seems clear that nominal AICs can serve as a useful probe into the semantics and pragmatics of standards for positives.

Finally, while nominal-AIC interpretations are consistent with what is known about the semantics of infinitival relatives in English, nominal AICs introduce at least one new mystery into the infinitival relative catalogue. I have argued above that infinitival relatives participate in restricting the domain of the input to the standard-identification function *s*; indeed, it is precisely the modality associated with the infinitival relative that gives rise to the inappropriateness reading when it interacts with the positive degree comparison relation. It seems, however, that infinitival relatives are exceptional in their ability to participate in such domain restriction; finite relatives have no comparable effect. The sentence *Middlemarch is a long book that Bob assigned* states simply that *Middlemarch* is a long book (i.e., it exceeds the standard of length for books in general) and that Bob assigned it. It does not state that *Middlemarch* exceeds the standard of length for books that Bob assigned; i.e., if Bob typically assigns books that are longer than 1,000 pages, and *Middlemarch* is 700 pages long, we still judge the sentence true provided that 700 pages exceeds the contextually relevant standard of length for books in general. I leave further investigation of this asymmetry to future research. For now I simply note that if the analysis of nominal AICs proposed here is on the right track, it suggests that infinitival relatives behave differently from their finite counterparts not only in their syntax and semantics, but also in their pragmatics.

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